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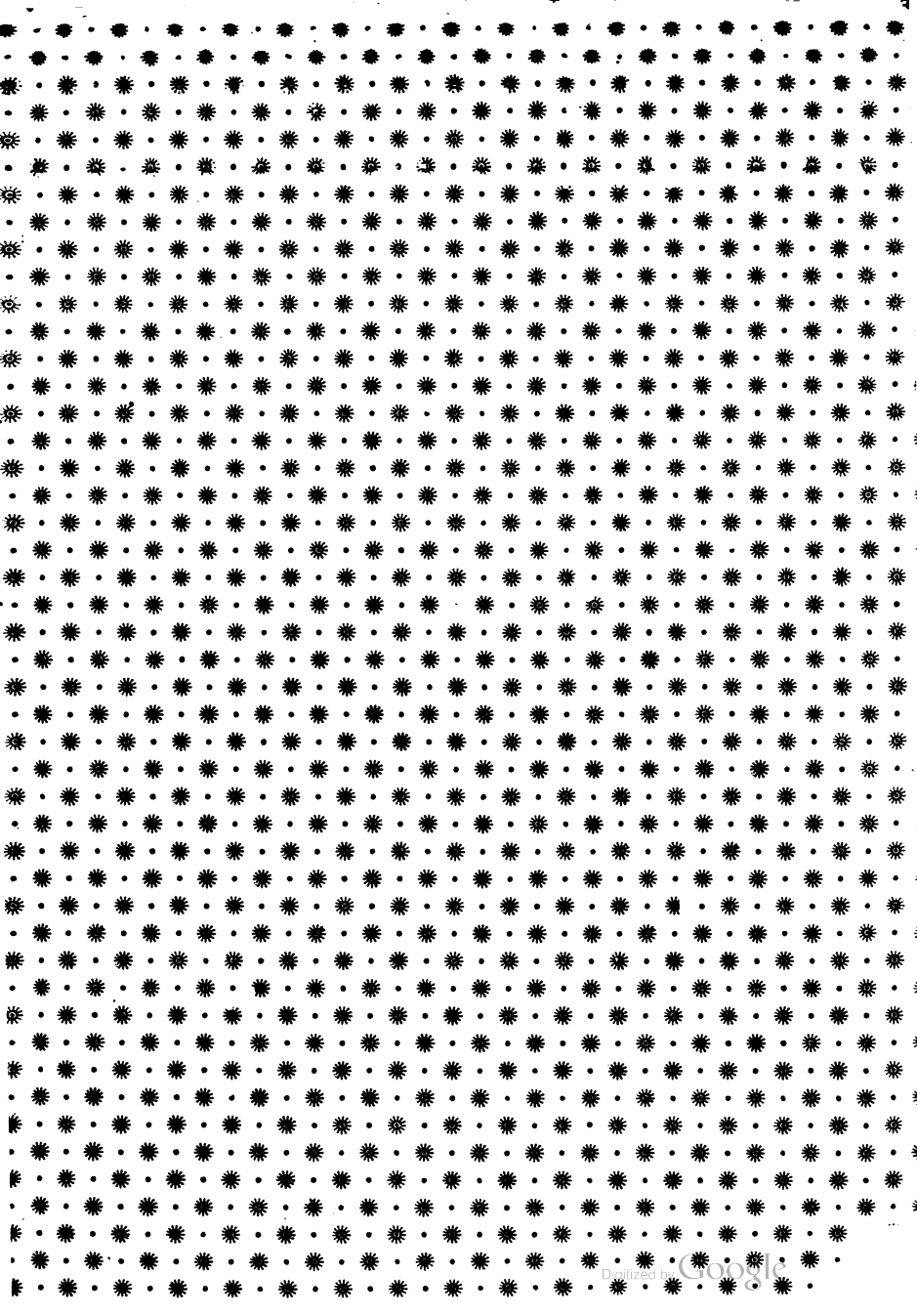
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17 April, 1897.



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THE DISCLOSURES
OF THE
UNIVERSAL MYSTERIES,
CONTAINING

1. THE IDEA OF GOD : ABSOLUTE INTELLECTUALITY.
2. THE CREATION: ABSOLUTE EMANATION.
3. MATTER AND FORCE: THE UNIVERSE IN ITS POTENTIALITY AND ACTUALITY.
4. THE UNIVERSAL MECHANISM: MOTION AND ITS TRANSFORMATIONS

BY
Joseph
SOLOMON J. SILBERSTEIN.

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ERRATA.

Page 82, line 8, *Thompson* should be *Thomson*.

Page 82, line 21, read *warmth* for *worms*.

Page 273, line 23, read *formed* for *found*.

TO

EDWIN R. A. SELIGMAN, PH.D.

PROFESSOR OF POLITICAL SCIENCE, COLUMBIA COLLEGE, N. Y.,

HON. ISIDOR STRAUS,

FORMER MEMBER OF CONGRESS, U. S.,

AND

WILLIAM JAMES, PH.D.

**PROFESSOR OF PSYCHOLOGY, HARVARD UNIVERSITY, CAMBRIDGE,
MASS.,**

**TO WHOM THE AUTHOR IS INDEBTED FOR MANY GREAT FAVORS, HE
DEDICATES THIS WORK AS A SLIGHT TOKEN OF
HIS ESTEEM AND APPRECIATION.**

I take this occasion to express my warm gratitude to the following noble-hearted persons for many favors, without which it would have been impossible for me to have pursued my researches and brought them to fruition :

Professor EDWIN R. A. SELIGMAN.

Mrs. JOSEPH SELIGMAN.

Mr. JACOB H. SCHIFF.

Mr. JAMES LOEB.

Hon. ISIDOR STRAUS.

Mr. DAVID L. EINSTEIN.

Mr. LEONARD LEWISOHN.

Dr. ISAAC ADLER.

Mr. ABRAHAM WOLFF.

Mr. LOUIS S. WOLFF.

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Hon. SETH LOW.

Professor WILLIAM JAMES.

Bishop HENRY C. POTTER.

Professor FELIX ADLER.

Professor MORRIS LOEB.

Dr. HENRY M. LEIPZIGER.

Mr. GEORGE L. BEER.

PREFACE.

THE title of this book, "The Disclosures of the Universal Mysteries," designates the matter set forth herein. Thousands upon thousands of years have elapsed, and of all the theologians, philosophers and men of science who have concerned themselves with the subject, not one has hitherto found the key of the universal mysteries. Whether or not I have found this key, I leave to the calm judgment of the reader, *after a careful study* of this book.

It will encourage the reader to give thoughtful attention to my work, when he finds by the quotations which follow, from eminent men whose judgment may be relied upon, that other writings of mine have merited their serious consideration, if not approval.

THE AUTHOR.

The author will deem it a privilege if persons noticing this work, whether favorably or otherwise, will send him a copy of their criticism. He will be pleased to afford any further explanation of his position herein set forth.

*311 East 74th Street, New York,
November, 1896*

CONCERNING THE AUTHOR'S WRITINGS.

Professor WILLIAM JAMES, of Harvard University, in a letter to Professor EDWIN R. A. SELIGMAN, of Columbia College, regarding the author's MS. "Divinity and the Cosmos:"

"There is a spiritedness about his whole attempt, a classic directness and simplicity in the style of most of it, and a bold grandeur in his whole outlook, that give it a very high æsthetic quality, reminding me forcibly of Spinoza himself, opposed as are many of Silberstein's views to those of his great forerunner."

In a second letter to Professor SELIGMAN:

"There is really a grand style about his writing—quite a native kinship to Spinoza."

In a letter to the author Professor JAMES states:

"Your style is wonderfully spirited and direct; your attitude is noble and the simplicity of your outlook sublime. You are really a first cousin of Spinoza, and if you had written your system then, it is very likely that I might now be studying it with students, just as Spinoza's now is studied."

Professor JOSIAH ROYCE, of Harvard University:

"Your discussions, both of the history of philosophy and of the fundamental metaphysical problems, show, even in their fragmentariness, in the present MS., an acuteness and skill that makes me wish that I could see in print your treatment of the fundamental question of philosophy. In this region your peculiar experience, your independence, your courage of conviction, produce results which reveal you in a very interesting light."

Professor GEORGE TRUMBULL LADD, Yale University:

"I have read a portion of the manuscript of Mr. Solomon J. Silberstein, setting forth his views in a new system of philosophy. These views are obviously the result of wide study and serious, prolonged and profound reflection. I should be very glad to have them published, so that they might be made accessible to all students of philosophy."

Professor STERRETT, Columbian University, Washington, D. C.:

"I have only been able to read enough of your MS. to be convinced of two things: First.—That you have the genuine philosophical spirit and insight. You know its central problem and its ancient and mediæval solutions. You have done genuinely philosophical work. Second.—That your terminology and method place you without the sphere of much of the current thinking. This argues nothing against the intrinsic worth of your thought. I believe that the work is well worth publishing, and that it will command the interest and attention of students of philosophy. I trust that you will have it published. I shall be glad to purchase a copy and to read it.

Professor GEO. M. DUNCAN, Yale University, New Haven, Conn.:

"I have read the first chapter of Mr. Silberstein's work, 'Divinity and the Cosmos,' and am impressed with its acuteness and originality of view. Much in it reminds me of Spinoza, and impresses one as being the production of a vigorous mind that has worked on the profound questions of philosophy in isolation from the general currents of modern speculation. It is all the more noteworthy from this fact. The writer is evidently a philosophical thinker of ability and originality, and I should be glad to see his work in print."

Dr. K. KOHLER, New York, writes: (November 4th, 1889.)

"Mr. S. J. Silberstein has written a Hebrew work on 'Religion and Law.' I gladly testify that the book in question shows profound and original research and vast erudition; and no matter whether the author may or may not expect to create a new cosmo-theological system surpassing that of Leibnitz and Spinoza, he certainly has the philosophical equipment, the love of truth and the self-denial of a real scholar, which entitle him to the respect and to the support of all those who, in our age of materialistic pursuits, still worship at the shrine of the ideal and honor the idealist, in whatever garb, as its priest and prophet."

CHAPTER I.

THE IDEA OF GOD: ABSOLUTE INTELLECTUALITY.

THE mechanic has a mental image in his brain of the machine which he intends to build. He builds his machine after the models or images which his brain creates. Thus, the knowledge of a machine creates a mental image in his brain in exactly the same form as the machine will be which he will afterwards construct in actuality. The intellect constructs that mental image before the physical machine is formed ; in other words, the physical machine is only a copy of the image which was previously formed by the intellect. The universe, containing all the physical objects, all the machines that ever can be in an actual existence by one general relation, as an infinitely great machine—must be the intellectual result of an intellectual image which was previously formed by an intellect. Thus, the intellect of the universe constructed that mental image of the entire universe before the physical universe was formed. The physical universe is only a copy of the intellectual image—

of the *intellectual universe* which was and *ever is* previously formed by an intellect.

It is true, the mechanic has the mental image in his brain of the machine which he intends to build before it is formed in actuality, because that mechanic has the knowledge of some preliminary propositions and axioms, as that of the logical and mathematical calculations, and has already experienced and experimented with many single phenomena by his senses; so that the mental image of that machine does not seem to be absolutely previous to the machine, but it is found and contained in other existing objects and is collated in the human brain of the mechanic from the ideas of many physical things that are previous in existence. But the truth itself, by teaching us that the mechanic forms his mental image of that machine only because he has the knowledge of some preliminary propositions and axioms, and only because he has experienced and experimented with many single objects that are previous in existence, teaches us plainly that the newly constructed machine is a mathematical inference from many physical objects that are previous in existence. Calculating the force in one compound object, regarding the amount of matter, or "mass" of the object, the magnitude and direction of the force, which impulse compels the object to be in a certain state and form, in its peculiarity, in comparison with

many other forces in many other objects and systems of bodies (machines), which impulses compel the objects to be in their different states and forms, in their different peculiarities—the mechanic has obtained by such a calculation his project to build a new machine, a new system of forces, which should possess a certain amount of matter, a certain magnitude and direction of forces, which impulse should compel the machine to be in a new state and form, to possess a new peculiarity, by the mathematical inferences.

Thus, the science of mechanics, by teaching us that given the mass of a body, the force acting on it, and the time during which it acts, we can calculate the change of motion, teaches us that the change of motion is a mathematical inference from the mass of the body, from the force acting on it, and from the time during which it acts. Teaching us again that given the mass and the change of velocity, we can calculate the magnitude and direction of the force acting, teaches us that the magnitude and direction of the force are mathematical inferences from the mass of the body and from the change of velocity. And teaching us that we can find the one force which is equivalent, in its action, to any given set of forces; for, however many changes of motion may be produced by the separate forces, they must obviously be capable of being compounded into a single change,

and we can calculate what force would produce that, teaches us plainly that just as a certain magnitude and direction of any given force is said to compel, as a mathematical inference, a certain change of state in a certain body, bodies are so also said to mutually act on one another, by mathematical inferences, through certain impulses. A certain impulse compels a certain change in a body; a certain change is a certain product of a certain impulse of a body. A certain impulse again, being itself a certain change in a body, must be, inevitably, the certain product of a previous impulse of that body, or of another body acting on it. Thus, every physical phenomenon, every change, effect and impulse of any physical object, is a certain product, as a mathematical inference, from previous physical phenomena, from previous changes, effects and impulses of physical objects that are previous in existence, and those previous objects must be certain products, by mathematical inferences, from more previous objects, and so forth without end. So also the last physical phenomenon, the last change, effect and impulse of the last physical object is forced to generate another product, by the mathematical inference, which shall bring another physical object into actuality to follow it, and so on without end. So that all physical objects that exist in actuality in the whole endless universe are thus joined together one with the other

and coming one from the other, by mathematical inferences, which spring one from the other and one after the other in one mathematical bond without beginning and without end.

The science of mechanics again, teaching us that when one kind of energy disappears or is expended, energy of some other kind is produced, and that, under proper conditions, the disappearance of any one of the known kinds of energy can be made to give rise to a greater or less amount of any other kind; and teaching us that the total amount of energy possessed by any system of bodies (the parts of a machine) is unaltered by any transformation arising from the action of any part of the system upon another, and can only be increased or diminished by effects produced on the system by external agents; and the observation of Renkine teaching us the remarkable consequence of the mutual convertibility which has been shown to exist between heat and other forms of energy; that the quantity of heat and that of any kind of work, or of any other form of energy balance each other and change one into the other,—teaches us plainly that none of the physical forces, none of any kind of energy, no impulse, no effect and no change has any real existence in itself, as it is always changing; and that the non-real existence of those forces is contained in a real existence of a *potential force*, or a *potential*

energy, in which all forces, impulses, effects and changes are absolutely one, and which reveals and modifies itself in physical waves, to appear in all kinds of energy, impulses, effects and changes, by mathematical inferences, in order to be individualized in all kinds of the different and varying objects and forces, and to balance each other and to change one into the other, in the one mathematical bond. And again, the science of mechanics, teaching us that a certain state and form of a physical object, of any material thing, is a product of a certain kind of energy, either through chemical combinations or through physical compositions, teaches us also plainly that matter, in its objective existence, has not any real existence in any state and form, which are always changing, and that the non-real existence of the objective matter is contained in a real existence of a *potential matter*, or a *potential essence*, in which all states and forms are absolutely one, and which reveals and modifies itself in physical waves, to appear in all kinds of states and forms, by mathematical inferences, in order to be individualized in all kinds of the different and varying objects and forces, and to be *conserved* in an objective existence, in actuality, *in all balancing of each other* and in all changing one into the other in the one mathematical bond, without beginning and without end.

The science of mechanics, therefore, while its business is to find what objective fact corresponds to the subjective data of sensation, in order to realize the objective appearances of the objective world as a conservative reality, compels us at the same time to pass over its limits, and to come to the inevitable conclusion that the objective realities in the physical world, which are realities to the sensual perception of man, are realities only to the subjective data of sensation, not to the subjective data of pure conception. All objective realities, the conservation of matter, and the conservation of momentum (force and energy) and of moment of momentum, in their times and places, which are perceived as realities by the muscular senses, corresponded to the subjective data of sensation, are not contained in the objective physical phenomena themselves. Objective matter, to our perceptions, is the infinite number of those physical waves, in the *infinite space*, in the form of physical objects in their different states and forms, in a non-absolute existence, coming one from the other and changing one into the other, from a deeper unity of absolute existence, from a subjective world beyond our sensual perceptions. The objective momentum and the moment of momentum, to our perceptions, is the infinite number of those physical waves, in the *infinite time* in the form of physical forces, in their different magnitudes and

directions, in a non-absolute existence, coming one from the other, balancing each other and changing one into the other, without beginning and without end, from a deeper unity of absolute existence, from a subjective world beyond our sensual perception. So that the physical universe, matter and force in actuality, does not contain its existence in itself. But universal existence as a whole, *its potential being*, gives existence to the particularized objects which are contained in it; and its quiddity, in its deeper unity, stands altogether by itself. All the compound objects in the physical universe which were, which are and which ever shall be, reveal but one manifestation of *potential matter* or *potential essence*. For, every manifestation we perceive is the effect, by a mathematical inference, of a manifestation which preceded it, and in its turn the cause of a manifestation that will follow it in the universal existence, in the one mathematical bond. That the existence of every compound object in manifestation does not lie in the object itself, but lies in the universal existence which is an absolute unit, containing in itself all that is manifested. All the particularized beings, therefore, the temporal causes in manifestation in the endless and multifarious, various and varying aspects as they appear in the universe are incessantly changing one into the other, coming and going, forming

and dissolving through the one universal cause of the *potential universe*, which is the absolute unity of universal existence, depending on the one general law, the one mathematical bond, which is the absolute being, and it changes not in all eternity. Thus, the potential force and the potential matter are absolutely one in their generality, it is the universe as a whole, *in its potential being*, from which the physical universe is individualized; and its being is a mathematical inference from a mathematical or an intellectual universe which was and ever is previously formed by an intellect standing and existing by itself. This mathematical or intellectual universe I call Absolute Intellectuality, the God of the Universe.

The students of the positive school, being dependent upon inductive method alone, have made up their conclusion that we have a relative knowledge only of the single things which we can analyze and experiment with, whose qualities and quantities enter within the range of our perceptions. But we can have no knowledge of things that we do not perceive. They will not busy themselves about things not manifested to the perception, nor search for the origin of temporal causes which flow from and merge into the one universal cause. Philosophers and scientists of this description have made the argument that natural

science consists of the knowledge of things as they are and is the only knowledge attainable by man. But, they opine, transcendental philosophy, which searches for the causes of single phenomena in their relation to the general universal existence, can never be attained by man. The truth, however, teaches us plainly that the cognition of man is not the wisdom of the mind, and therefore, the cognition is no knowledge at all. Human cognition is limited by the perceptions of the senses—the perception of the particularized compound objects, each in its particularized state and limited capacity. The same is the cognition of the animal, the bird, the reptile—each, according to the senses he possesses and their development. The life of the animal as well as that of man consists of the possession of senses and brain. The senses convey their perceptions to the brain, and in the latter images are formed of the objects perceived. The formation of such images is cognition. Thus “the ox knoweth his owner and the ass the manger of his master.” Each one according to the manner in which his senses come in touch with the outward appearance of particularized objects and according to the reflection which his perception casts on the brain. In this wise the cognition of man is constituted of the knowledge of individual objects in their particularized states as we perceive of their outward being

by our individual experiments and perception. But wisdom, the true wisdom of the mind, teaches us that the being we perceive is not absolute, that the outward form of a compound object is not the object itself, that the real being of every compound object is part of universal existence. The outward being of every individual compound object lies in the inward existence of the universe itself; for the existence of every particular object comes from the existence of a particularized object which preceded it in time, and the cause of the previous object was in an object still more previous, and so forth in an unlimited range of changes. Thus, if we want to know by pure wisdom the real being of any particular object, its real quantity, quality and intensive properties, we must search it by the *a priori* method of pure reason, by deduction from the universal to the particular; we must begin with forming an idea of existence in general. The being of the bread and the being of the man are two distinct beings outwardly at one certain time. But the being of the bread at that time is not its true being, nor is the being of the man in its time his real being; for in the course of time the bread becomes man and the man is converted into bread. The bread eaten by man is *de facto* man, and the man dissolved into his component elements turns into bread in the process of time. The bread which man eats becomes

by the process of digestion blood, muscle, bone and all the other substances of which the human frame is formed ; and when the man dies, his body is dissolved in the elements of which vegetables are composed and bread is made. Now, if the temporal being of any individual object were its real existence, its entity, entirely dependent on itself—it could never be transformed into any other compound object. If the identity of bread, while it is bread, were in itself as regards its quality, quantity and intensive properties as we perceive them with our senses, how could it ever become man ? The entity of the bread in its time and the entity of man in his time are quite different from each other. If they were real entities how could they merge one into the other ? We are consequently forced to assume as a positive fact that the entity of any compound object as it appears within the limits of time is not real. Thus the entity of every individual compound object within the limits of time lies in and consists of the entity of all individual compound objects in their universal generality, in the intensive universal existence which the senses cannot perceive but which the mind can conceive of. Thus, the science of experience and experiments alone, of which our naturalists are so proud and which they call “exact knowledge,” is only a delusion, and all principles built upon it and all inductions drawn from it

are not true. The laws which our scientists have discovered may hold good only in as far as practical machinism is concerned as a separate and distinct means by which man can make use of the particularized objects and already developed forces he knows by his experience. But they are not laws whose activity controls nature in general, or even the universal mechanism as an integral part of the wisdom of universal existence. We can have no knowledge of the real nature of any compound object, even in its singularity, as it appears before us, before we have a pure intellectual conception of universal existence in general.

The question whether a man is able to possess a pure intellectual conception or not, will be proven in the following pages. The reader will please follow me step by step until we arrive together at the highest wisdom and the pure knowledge of the universe in general and in its particularizations.

We know clearly that everything that exists in actuality was brought into existence by a cause which preceded it, and that cause was forced to become a cause by still earlier causes, and so forth without end. So also the last cause, which has brought the thing into actuality, is forced to generate another cause which shall bring another thing into actuality to follow it, and so on without end. All the things that exist in

actuality in the whole endless universe are thus joined together one with the other, and come one from the other by temporal causes which spring one from the other and one after the other in one bond without beginning and without end. Now, if we wish to know a thing that exists in actuality, we must know the cause which has brought it into existence; for every cause contains in potency the thing which is to exist in actuality, as it should exist in actuality. But from the thing itself which exists in actuality we cannot know the cause which has brought it into existence. The image of every thing existing in actuality as recognized by the senses, which is but the outward appearance of every compound object—as it cannot convey to us the knowledge of the quiddity of that object, of its real quality, intensive properties and the order of its constitution, so can it not give us the knowledge of the cause which preceded it. For the image of every thing existing in actuality is nothing but its outward form, while the cause which preceded it contains in itself and produces in the object its quality, quantity, quiddity and all its intensive properties, its constitutional formation together with its outward form or image. Thus, if we wish to know a cause which has brought a certain thing into existence, we must know the cause which preceded that cause and then the precedent cause of that earlier

cause, and so forth without end. If we wish to know one cause we must know all the causes of the endless universe which were and are in existence. But man—who in his body is limited in time and by the perception of his senses—as he is not able to know all the causes, he is unable to know any single cause. On about the same principles is based the “relative knowledge” of our scientists and the whole system of Scepticism, from the ancient philosopher Pyrrho of Elis till Emmanuel Kant. But the truth itself teaches us quite differently.

This, however, we do know clearly : that every effect, every existing thing, is a product, by a mathematical inference, from a previous cause, as it is the case in the whole science of mechanics ; and, therefore, we do know clearly that if man were able to know clearly one cause in the universe, he would through that knowledge know also the cause which is to follow it even before the latter will become a cause. That the knowledge of the cause is previous to the cause. Thus, as every cause by which a thing is wrought in actuality is previous to the thing itself, so also is the knowledge of the cause previous to the cause itself. And since we clearly know that all the things of actual existence, the various and differing compound objects of the universe, are intertwined one with the other and come one from the other in the

succession of causes which preceded them in universal existence in general, we know clearly that all the causes existing in particularization in actuality—as well as those which exist in potency in the universe in general—are bound up one with the other in the knowledge of the causes, in the mathematical bond, which preceded them; and we know also that in the mathematical knowledge of every cause is contained the knowledge of all the causes which preceded it without beginning and which are to follow it without end; that the knowledge of one cause contains in itself the knowledge of all the causes of eternal existence, as one mathematical inference is inferred from and contained in every one of the whole mathematical bond. And since we know already clearly that the knowledge of every compound object is not contained in the object itself, but the object is contained in the knowledge of the cause that preceded it and brought it into actual existence by precedent knowledge, and that precedent knowledge, again, is contained in the knowledge of a cause still more precedent which contained it in potency and wrought it in actuality, and so forth without end, we thus come to the above conclusion clearly, that the knowledge of the universe as a whole and in its particularization is contained not in the physical universe itself, but is one Absolute Knowledge standing by itself beyond the physical

universe and preceded it. We also came to know clearly that all the particularized things that exist in the physical universe exist only according to the mathematical inferences, to the previous general knowledge that preceded them. There is not a thing known in the general knowledge which is not found in the universe in particularized actuality, as a mathematical inference, just as there is not a thing in particularized actuality which is not contained in the general knowledge in the mathematical bond.

We thus arrive at a new conclusion—that the human intelligence is identically the same with the one Absolute Knowledge. We know clearly that the knowledge of one cause contains in itself the knowledge of all the infinite causes of the universe; that the knowledge of the universe in general and in its particularization is contained in each instance of knowledge of each of the causes of the universe. The very being of the absolute general existence of the universe is the very absolute being of every one of its particularizations. The intelligence of man, therefore, is the knowledge of that knowledge. It tells man what is the knowledge which causes the understanding of the human mind. By that intelligence itself which man possesses, he knows that, as man, he is unable to know. His intelligence tells him that he is an individual compound object, formed by a

previous cause according to his time and according to his place, and by that he knows that he cannot know himself with all his intensive qualities, because he knows not the previous cause of his existence, and this, again, because that previous cause has become a cause only through another cause which was still more previous, and so forth without end. Thus, man, in that he knows that he cannot know, knows also that all the causes which are active in the universe are joined together in a chain of eternal succession in the one absolute general cause. And in that man knows that he cannot know one single cause because every cause is but the mathematical result of a previous cause, he knows that, *if he know* one cause in the universe, he could know the cause from which it developed before it has become a cause. Man, therefore, knows that the mathematical knowledge of a cause is previous to the cause itself. Accordingly, man knows, by that he knows that he does not know, that all the active causes of the universe are coming one from the other and intertwined one-with the other in one general bond in the general cause which preceded them, and that the one general cause was made according to the mathematical knowledge which was previous to it. He knows, therefore, that the universe entire in its being in actuality, consists in its *potential existence*, which is the one primitive cause to the

whole actuality, and that the potential existence of the universe is its existence in the *mathematical bond* in the Intellectuality, which is the Knowledge of all causes—the cause of all causes. That the universe entire, in its generality, which is the general cause, and in its particularizations, which are the temporary causes, exists according to the knowledge which preceded it, as mathematical inferences from the One Mathematical Bond, and that in that universal knowledge there is nothing which the potential or the actual universe does not contain in actual particularization, for everything in the universal knowledge is a mathematical inference to be produced in actuality, and that there is nothing in actual particularization which is not contained in the universal knowledge. Thus man knows that the eternal truth, or the general and safe criterion of the truth of every conception, is that: A thing meditated and formed in the mind, to be found in existence, as it can be in actuality, holding true by mathematical inferences, according to the laws of Intellectuality—i. e., after having a pure, general conception of the Absolute Generality. By all this, man knows that the general being of the universe entire is the general being of every individual compound object in its particularization, and in the knowledge of every individual cause that is active in the universe is contained the general knowledge

of all the endless causes of the universe in general. According to this, man knows that the intelligence of man, which is the knowledge of one cause, through which man knows that he, as man by its animality, does not know, contains the general knowledge of the universe entire. Knowing one cause of his own limited knowledge, he knows all causes of eternal existence. By that, man knows that he does not know, he comprehends the whole knowledge of the entire universe:—Through the knowledge of the one cause of his limitation, he may arise to the highest knowledge, to Divinity itself, to the Knowledge of all knowledge.

But the intelligence of man, coming to the human mind by previous causes, after having experience and experiments with many single phenomena by the senses, from the objectivity of the universe, is contained in the human-instrument—in the brain—in order that the objectivity should be converted into subjectivity in the brain, as will be clearly explained in the next chapter. The Absolute Intellectuality, however, is previous to all causes, is the Subjectivity itself, from which the objectivity is produced; and as the objectivity—the universe in actuality—is endless and boundless, nothing is behind it, that there is no time and no place where and when the universe does not exist, the Intellectuality, therefore, must be con-

ceived of a manner properly qualified to the universe. He has no brain, and He cannot be placed in anything, nor anything can have any place in Him, besides His Intellectuality.

Again, forming in our mind a general image of the entire universe, we have the abstract image of the entire universe in our brain after the universe is already made and our body and brain are already in actual existence. The universe in actuality exists previously to the general image of the entire universe in our human-intelligence, and in the physical universe as well as in the general image of it in our brain are enclosed our body and brain. The general image of the entire universe in the human-intelligence, therefore, must be conceived only through the human instrument and must be enclosed in that instrument, called the brain. The intellectual image of the entire universe in the great Mechanic of the universe, however, is thinkable previously to the universe, that the Intellectual Universe must be entirely previous to the physical universe, and that there is not any other physical thing in any existence besides or behind the physical universe. The Intellectual Universe, as a consequence, cannot be thinkable to exist or to be enclosed in any physical thing behind Intellectuality. Intellectuality, therefore, has not any other attribute, nor any mode of matter and force, but pure Absolute

Intellectuality, the pure Mathematical Bond of the universe as an Intellectual Substance in an eternal Being, standing by itself, without any change in all eternity. The extension, or matter and force cannot be an attribute of God as a unit in Him just as Intellect, as Spinoza opines, but a separate creation made of Him.

And again, when man thinks with his material brain of one machine, he cannot with the same thought dwell upon another machine, even when he thinks of a triangle, he cannot with the same thought dwell upon a square; the intellectual image of a physical machine, in the brain of the mechanic, therefore, cannot be so perfectly generalized, and all the different and separated particles and instruments of that machine, cannot be perfectly known and cognizable one in the other in their mutual intertwined relations. But Absolute Intellectuality, which is not material, embraces all abstract images without end in one perfectly Absolute Generality, in the one Intellectual Being;—so that in the knowledge of every one of the mental images in the Absolute Intellectuality is contained the knowledge of all mental images of eternal existence, and that every one of the mentally separated images are perfectly known and conceived one in the other in their mutual intertwined relation in the one pure Absolute Generality.

Thus, Absolute Intellectuality is the Intellectual Being of the universe:—the ideal concept of the universe as a whole in one abstract image:—*i. e.*, the images of all particularized objects that ever can be in universal existence, their volumes and masses, states and forms, modes, entities and quiddities, as they are conceived in an abstract image as an absolute generality, is the Absolute Intellectuality, the Almighty God, the pure Intellectual Substance, the Absolute Being, Jehovah the Lord of the universe, standing by itself in all eternity.

CHAPTER II.

THE CREATION: ABSOLUTE EMANATION.

THE general image of a physical machine in the brain of the mechanic cannot be converted from its idealistic state into a machine of actual existence ; the architect must use many physical instruments and materials to build that machine in actuality, and the existence of that machine, when it is already made, is no more dependent upon the architect but upon itself. For, the abstract image (the idea of any existing thing) which we form in our mind is eternal of absolute existence, unlimited in time and in place. Forming in our mind the image of a triangle, that image can never be destroyed, even if all the triangles in manifestation be put out of existence altogether. Any pure human intelligence, as it is true, as it contains not any contradiction in it, is an eternal truth in all times, places and with all men. It is never changing and is never particularizing itself in different forms or shapes. They do not spring one from the other, one is not the cause of the other ; one form of truth cannot be converted into another form of truth.

If we draw our conclusions or inferences from previous truths and base our conclusions thereon, as we generally do in Logic and Mathematics, the previous truths remain as such unchanged, they were not converted into new truths. The human intelligence, therefore, any general image, or any mental concept in the human brains of existing things, as it is absolute, as it is a real being, cannot be converted or transformed into a single concrete manifestation—into a physical or material thing, changeable and consequently non-absolute, nor have any relation with it in actuality.

The universe, however, consists of two kinds of existence: A sensual or non-absolute, and an intellectual or absolute existence. To the sensual perception of man, the universe is nothing else but an aggregate of various and varying compound objects—an aggregate of single parts, changing one into the other, coming and going one from the other and one after the other by a non-absolute existence. But to the intellectual conception in our mind all particularized compound objects have but one existence; that their quantities and qualities, forces, causes and effects constitute one thing in the universe; that their beginning is their end and their end is their beginning; that the causes and effects by which they came into existence are the same by which they came to their end; that each particularized compound object of the

present is the same as the one which was before, and contains within itself the object of the future. Thus to the general conception of existence the universe is one pure absolute being which has no beginning and no end. The universe, therefore, can neither be a non-absolute nor a self-existing being. For if the universe were a non-absolute being, limited in time and space, if we could imagine that there was once a time and a place when and where the universe did not exist, the universe, then, could never be created, as there were never to be found a creator to create it. The existence of any creator before the universal creation in time, or behind it in space, is a natural impossibility. Because a creator of the universe must have the cause of creation in himself as a perfect absoluteness in him; it must be absolutely one and the same in the very cause of his own absolute being, not to be caused by any creation or creator. The cause of all causes cannot be caused by any outside cause. If we are able to conceive the existence of a Supreme Being, that the Being of all being exists beyond and previous to all that exist, who bestows existence to all by His own Existence, we have to conceive at the same time, with the same conception, that all which may be comprehended in the existence of that Supreme Being must be conceived as the very essential thing of His very Existence. That the

intellect, the will and the production of creation are one and the same of His essential Being. Since His Existence is conceived to be the Supreme Existence, not caused by any other cause, His Intellect as well as His will and His activity of universal creation must be absolutely enclosed in His Supreme Existence, not as an accident in time or in space. If the activity of the universal creation is conceived to be the production of the Supreme Being in one moment of the infinite time and in one point of the infinite space, this activity must be the essential being in his absolute existence for the whole infinite time and for the whole infinite space; for there can never be a cause in Him to the activity or to His will in one moment and in one point of space and not to be the same cause in Him in another moment and in another point of space. Now, if there were one moment or one point of space in which the universe did not exist, the universal creation in that moment or in that space were not an absoluteness in the Supreme Being, that the creator were not a creator in that moment or in that space, and since there is no cause previous or beyond the Supreme Being to produce his existence, we would, consequently, never have had a creator to create the universe. Thus, the universe, as it is before us in existence it must be positively an absolute being, which has no beginning and no end, whether

it is a created thing or not, it must be endless and boundless.

And if the universe were a self-existing being, that the cause of its existence were inherent in it, then no change and no modification could ever be generated in it. Because the very cause of its being, which were inherent in it, implying it to be modified one moment in an infinite number of single things, each of them in a certain state and form, would compel it to remain in such a number of things, each of them possessing such a state and form in all eternity. The cause of its existence itself, which is the cause of conservation in it in one moment, cannot be changed by its own impulse into a cause of change in another moment, that the single parts of the universe should be changed, every moment from one state and form into the other.

The modern science of mechanics is based upon the laws of motion established by Sir Isaac Newton, the first law of which is that : " Every body continues in its state of rest or of uniform motion in a straight line, except in so far as it is compelled by force to change that state." The first part of this law is positively not correct, because a body in a state of rest simply meant a relative rest—for there is no absolute rest in the universe—since everything existing in the universe, in whatever state and form it may be, must have some power or life to exist ; and

as there is no power and life in any thing without the motion in it, the body, therefore, which is found in a state of rest can only be found in that state through the compulsion or influence of a greater velocity of a larger body, and continues in that state only as long as the influence of that body compels it to be in that state; but as soon as that influence ceases, the body becomes its own peculiar motion, and has no need to be compelled by force to change that state, as will be fully explained in the fourth chapter of this volume. The second part of the first law of Newton, however, is positively true, in so far that every body continues in its state of uniform motion in a straight line, except as it is compelled by force to change that state, because the motion of the body is the result of the power of conservation in the body, and it cannot be converted by its own impulse into another cause of change.

This law tells us that whenever we find the state of motion of a piece of matter changing, we conclude that it is under the action of an outside cause or causes. But the piece of matter, when it is left to itself—*i. e.*, not acted by outside causes - it preserves its state, whether of rest, according to Newton, or of uniform motion in a straight line. This property is commonly called the "inertia" of matter, in virtue of which it is incapable of varying in any way its state of "rest" or motion. So that the science of

mechanics itself, teaching us, as a general law of nature, that no piece of matter can be changed by itself, compels us again to pass over its limits, not to be dependent upon the experimental knowledge alone, but to come to the following transcendental conclusion :

Since no piece of matter can be changed by itself, and every body continues in its state of uniform motion in a straight line, except in so far as it is compelled by force to change that state, we must assume as a positive fact, first of all, that every magnitude and direction of motion of every body does not contain the cause of its own change within itself. And since the motion of every body does not contain the cause of change in itself, and the piece of matter when it is left to itself preserves its state of uniform motion in a straight line, the motion of every body must consequently be within itself the result of the power of conservation in every body. Since the piece of matter preserves its state of uniform motion only as long as it is left to itself, but as soon as it is acted upon by outside causes, we find the state of motion of that piece of matter changing ; it is, therefore, evidently shown that there is no other power of conservation in the piece of matter than *this* of the motion in it, and consequently the peculiar motion of every body must be contained in the body, proportional to

the mass of the body, in order to be conserved in its peculiar state, in its magnitude and direction. A large body must possess a greater magnitude and direction of motion, and a smaller body a smaller magnitude and direction, each of them according to its peculiar power of conservation, proportional to the mass of the body. And, again, since the motion of every body is the result of the power of conservation proportional to the mass of the body, and, therefore, does not contain in itself the cause of its own change, it cannot contain, also consequently, the cause of change to the motion of another body; since the peculiar motion of every body, being the result of the power of conservation in the body, proportional to its mass, is inclosed and bounded within the limits of its mass; it can never have, therefore, anything to do with the conservations of other bodies, which are also inclosed and bounded within the limits of their masses, and they have never the force in themselves to counteract upon each other. According to this positive conclusion, there is no active force of change in the objective world, neither in the matter of the bodies nor in their motion, which is the force acting on it being conserved; and, accordingly, the meaning of the term "force," which means, according to Newton's view, that "force is whatever changes a body's state of rest or of uniform motion in a straight line"

is wasted on such a "force" which has no existence in the objective world at all. In reality, however, the science of mechanics, as well as the whole sciences of our time, deal not with the origin of matter and force and their causes, but with the effects produced before the scientists in their objective appearances. Yet, the law of "inertia," even if it is not true in the whole, it is positively true in the part of it, that no piece of matter and no force acting in matter can be changed by itself.

Now, if the universe were a self-existing being, if the cause of its existence were inherent in it, no change and no modification could ever be generated in it. The objective world would ever firmly stand by its property of "inertia," containing the one and the same infinite number of bodies, each of them possessing the same state and form, without any change, in all eternity.

The universe, therefore, must be an absolute being only in so far that it has no beginning and no end, but the cause of its existence is not inherent in it, there must be a pure absolute being in a perfect absoluteness, in which no change and no modification can be thinkable, and in which the existence of the universe is contained.

The universal matter, as a positive consequence of the above arguments, cannot contain in it the per-

fect absoluteness of existence. All the opinions of the Materialists, from the ancient till our modern scientists are based upon false premises. The main argument of our scientists to prove the reality of matter consists in such an expression : " Do what we will, we cannot alter the mass or quantity of a portion of matter. We may change its form, state of aggregation, dimensions, etc., or (by chemical processes) we may entirely alter its appearance and properties, but its quantity remains unchanged. But this experimental result on the reality of matter is no evidence at all. The science of chemistry, having adopted a certain number of "elements," confesses that "the list of elements is not from an absolute belief in their real oneness of nature, but from the absence of any evidence that they contain more than one description of matter." Because the atoms are exceedingly small beings, and all the craft of man cannot avail to dissolve them or to combine them into molecules, therefore they have not an "absolute belief" in their real oneness of nature. In the same way they can never have any evidence of any reality of matter and force of their objective appearance, for it may be that if the craft of man would be greater, he could dissolve the elements or any portion of matter into something else, or, it may be also, *into nothingness*. The whole experimental knowledge, therefore, as a human experi-

ment only by the human limitation, by the sensual perception, has no evidence of any reality of matter.

The existence of the universe cannot be explained by the pantheism of the great philosopher, Benedictus de Spinoza. I have already published two pamphlets of a little different kind, in which I have attacked the whole system of Spinoza and of many other philosophers, but I will bring here again many arguments against Spinoza, in which system all the systems of all philosophers are concentrated, in order that my whole system should be complete in this book.

Spinoza says :

1. Cogitatio attributum Dei est, sive Deus est res Cogitans.

2. Extensio attributum Dei est, sive Deus est extensa.

Translation : 1. Cogitation (thought) is an attribute of Divinity, or Divinity is a thinking Being.

2. Extension is an attribute of Divinity, or Divinity is an extensive Being.

According to these cardinal principles of his system, there is one being in the universe which manifests itself by its two principal attributes: the attribute of Cogitation (intellectuality or thought) and the attribute of Extension (creation, physical). The attribute of Thought is the universal soul ; the attri-

bute of Extension is the universal matter. The Being in its necessarily absolute nature puts forth from itself concepts or attributes endless in time, space and number, and reveals itself in each of them in limitless eternal existence; all these attributes are one in the substance or Being itself. Man can conceive only of two distinct attributes, Thought and Extension, because he is composed of body and soul. Thus, the concept of Extension—which is the universal matter—is eternal and endless; and all the particularized beings in the universe which are limited in time and in space are but modifications of the universal Being through the attribute of Extension. Every particularized being is such by the causation of a particularized being that preceded it, and the latter again was caused by another particularized being still more previous, and so forth without end. All compound objects in the universe appear as particularized beings through the eternal activity of the Extension of the absolute substance or Being. The Substance acts and is acted upon; it acts in nature and is acted upon by nature. In the active and passive states of the Substance particularizations are manifested by their changing in time and space; but they are all one in the attribute of Extension which is universal matter. The universal matter according to Spinoza, is like unto the heaving sea. It strikes waves and billows of

different magnitude and form, which form and rise in one second and are reduced to the mother element in the next to make room for other formations like them. It is well known what those waves are and what becomes of them. The wave in rising is but a modification of the sea, it is the sea itself; when it falls, it is but reduced to its natural level; it is not destroyed or lost. The sea and its waves are one and the same thing; thus the universal matter and the particularized objects are identically the same.

Such, also, is the case with the attribute of Thought, which is the universal soul. It is endless and eternal in itself, and all particularized thoughts or imaginations in every individual being and man, are but modifications of the attribute of Thought. Every individual concept is caused by the attribute of Thought, because it is actuated by another individual conception that preceded it, which was also caused by the attribute of Thought, because it was actuated by a third individual conception that was more previous, and so forth without end. All the sentimental images and thoughts of every existing being, even the intelligence of man, like will, desire, love, hate, anger and other abstract conceptions, which are limited in time or in space, appear to us as particularized thoughts and as modifications through the eternal activity of universal Thought. Those

attributes, Cogitation and Extension, with many other attributes of an endless number, are absolutely one in the absolute Substance, Divinity or Universe.

This theory of Spinoza was a stumbling-block to all philosophers of the last two centuries, for they have ignored every pure and lofty idea for the notion that nature works by necessity. The Substance itself which Spinoza predicates, and which is the Divinity creating and sustaining the universe, with all its exalted attributes, such as the soul, the eternal truth, righteousness, justice, are all just as all material works of nature. God Himself, who is Spinoza's Substance, is the matter of which the soul and all the working forces of nature are composed. Thus there is no distinction between man and beast, for they are all one in the universal Substance which is God. Analyzing the various cosmical theories which have been propounded for the last two centuries, even those systems which seem to be against Spinoza, we find that they were all founded on this Spinozism, which in itself is false, according to the following demonstrations :

I.—The attribute of Extension may be revealed to us in universal matter. For the universal matter, from which all compound objects are composed, is everywhere the same. All the numerous bodies of the universe, however different in their respective qualities and quantities, in whatever way they may

be conceived by us, whatever change they may undergo in time and space, are one as regards matter. The universal matter is the atoms which are ever alike in all compound objects. The same atoms (or elements) which compose the brains of men compose also the feet and the other members of the human body. They are equally the same in the animal, the vegetable and the mineral products of nature. The atoms composing the mineral change in their grouping and become a vegetable, and then they change again and form a man. So, also, in their reverse: the atoms which compose the man change in their grouping, and become a mineral, a vegetable and an animal object. The atoms are the matter of which all the objects of the universe are composed, and all the variations of compound objects are due only to the variations in the grouping of these atoms. The work of grouping may be due to the activity of the universal Substance, which, according to Spinoza, is the attribute of Extension in God, and manifests itself in the particularization of objects or in its modifications. But the attribute of Cogitation, which is absolute wisdom, does not contain in itself all abstract conceptions. The conception that the three angles of a triangle are equal to two rectilineal angles has nothing in common with the conceptions of desire, love, hate and all other offsprings of the imagination. The imagination of

man and of other living beings may change one into the other and one after the other by various causes, at various times and according to various dispositions of the individuals. But the absolute fact that the three angles of a triangle are equal to two right angles can never change; for the pure intellect, as such, is not conditioned by time or by space, and cannot change by the limits of time or space or of the animal disposition. The source of true wisdom cannot change into a source of folly or into any other conception of the imagination. Thus, if the attribute Cogitation, which is, according to Spinoza, the absolute universal wisdom, reveals itself in the human intelligence, in any conception of the mathematical or logical inferences, it can never be revealed in any foolishness or in any idiotic image, nor in any conception of imagination. The attribute of Cogitation, which is the source of all pure absolute wisdom, cannot be at the same time the source of the imagination to contradict itself, and, consequently, all the imaginations of any living being, as they do not belong to the universal matter—because they all have one source in the soul or mind (idea) of all the living beings—according to Spinoza, they also do not belong to the universal Wisdom, because Wisdom is only wisdom, and only the source of wisdom. All imaginations of the whole living soul, therefore,

do not exist as modifications of Spinoza's one universal Substance.

2.—The attribute of Extension can be conceived as a Substance which manifests itself in the universal matter of which all the different compound objects are modified. The compound object, as such, becomes what it is only after a previous compound object was changed and dissolved in the atoms of its composition, and after those atoms have grouped together in a new manner to form a new object. The quantity and quality of the new object are an outcome of the quantity and quality of the object that preceded it, only after the latter has changed its quality altogether and the form of its quantity to yield the material for the new formation. Thus, all compound objects come one from the other and change one into the other by an endless chain of causation through the everlasting activity of universal matter, which may be called the Substance of Extension. But the attribute of Cogitation, absolute wisdom, can never be conceived as such a Substance which *modifies* itself in the universal soul, of which all the different and various concepts should be modified, for it is never changing within itself. The elements of thought do not issue forth one from the other and one after another. One principle of absolute reason is not dissolved and destroyed to make room and to yield material for

another one. When we make intellectual combinations by mathematical or logical methods, building new principles upon the principles which have been established before, we cannot destroy the old principles, as long as they hold true, for the sake of our new mental contrivances; the old principles must remain in their full absolute concept. The knowledge in man may be *meditated* by previous knowledge or principles; we may have the knowledge of one thing only through the knowledge of many other things. Before we learn that the angles of a triangle are equal to two right angles, we must know—first, that the two angles on one side of any two intersecting lines are equal to two right angles; second, that two parallel lines cut through by one transverse line form equal angles on each side of the transverse line, and third, that a diagonal line running through two parallel lines forms exterior angles with the one which are equal to the interior angles which it forms with the other parallel line. By these three propositions we arrive at the fourth one—that the three angles of a triangle are equal to two rectilineal angles. As our material being, as men, is accidental in the universal matter, and our brains, by the instrumentality of which we think, are particularized and changeable, we are unable to arrive at the knowledge of existing things as they are, because our thinking is interfered

with many differing and varying imaginations, coming and going by the variable impressions of the senses on the brain. But, for all this, none of the simplest conceptions of the truth is destroyed to make room for the more general conception which includes them. Neither of the three mathematical propositions is destroyed by the truth we learn about the angles of the triangles. A mathematical inference is not caused by previous mathematical inferences or propositions, as is the case with the universal matter. The three angles of the triangle are equal to two right angles, not because they are caused by the above three mathematical propositions to be equal, but simply because they are so—because they are neither more nor less. Neither this truth, nor that of the propositions by which we arrive at it, is changed in quality or in quantity for the process of our conception of them, for there is no quality or quantity in intellectual conceptions. The elements of intellectuality are not issuing one from the other or changing one into the other in the order of certain causes. They are each independent and mentally apart, perfectly absolute, indestructible and eternal. The attribute of Extension, therefore, being conceived as a Substance which modifies itself in an infinite number of different forms, as the universal matter, in which each one appears only after the other has already disappeared, is posi-

tively not identical with the attribute Cogitation, which is conceived as an intellectual Substance of the whole universal Wisdom, in which no one of the infinite number of the mental images which the universal Wisdom may contain is modified by a previous one. Thus the universal Substance which is conceived as the universal Wisdom, which is never modified or changeable, cannot be at the same time the universal matter; it must be conceived only by the one attribute of Cogitation, in which no other attribute or modification can be thinkable besides His Intellect.

3.—The attribute of Extension, universal matter, is active and passive; for all compound objects change one from the other and one into the other by the universal activity; the perpetual changing is the universal activity. Every action, as an action, must of a necessity change; for as the force acts upon matter the latter changes, and this change produces a change in the force itself. Thus the Substance of Extension, universal matter and the universal force acting in it, must reveal itself by the changing of forms, or by the accidents of time and of space through its perpetual activity; it is at once active and acted upon. But the attribute of Cogitation, absolute wisdom acts not and is not acted upon; and does not reveal itself by accidents or modifications. Action, which is nothing

but change, can occur by will or by compulsion ; but absolute wisdom has no will and no compulsion. A man having acquired wisdom and embraced principles, is actuated upon, by that wisdom, only in his physical or material constitution, only in his bodily relations because he is composed of matter. The action in the body of the thinking man consists in this, that the wisdom prompts him to avoid certain material impressions, to prevent them affecting his brain, the instrument of cogitation, in order to be able to use his instrument, his brain, only to that purpose to acquire wisdom and embrace the true knowledge of things. This material instrument of thought is subject to will or compulsion ; the man may or may not search for the true knowledge of existence by his instrument. About the same is it with the physical triangle which is a material thing limited by three lines ; it must (by compulsion) have three angles equalling to two right angles. Will and compulsion exist only in matter and for matter, because it is changeable through its inherent activity or from without. But the pure intellectual, or (as it is generally called) the mathematical triangle has neither will nor compulsion. The abstract triangle and its proportions do not come either from the will or by compulsion of the universal wisdom in which they exist. That universal wisdom is not limited by

the lines of the triangle or by any dimension of any physical figure, but outside of all limitations it contains the laws or ideas of the truth, which embraces all things and judges every thing by its very being. An intellectual principle has neither will nor compulsion nor activity of any kind. Thus the Being of Intellectuality, Absolute Wisdom, is not one with the Substance of extension. The latter which is universal matter, is active and subject to action (passive) and manifests itself in various particularized accidents. But the Being of Intellectuality is neither active nor passive, and does not manifest itself in particularized accidents; it is an absolute unity in itself, without any change in all eternity.

Man is an accidental being in the substance of extension, because his body is a mode of matter in various compositions, which come one from the other and follow one another by a chain of causation in the changing of the conditions of universal matter. But he is not an accidental being in the Being of Intellectuality itself, in the mind universal. There is no difference between the thinking man and the thinking Divinity, but in the body. The brain of the human body as an accident of the substance of extension, depending on the changes of conditions, time and place, cannot comprehend *at once*, in one conception all the truths which are in the absolute, endless.

Mind ; but all the truths which the human mind can conceive are identically the same as those contained in the endless Mind, in the Being of Intellectuality itself. The man, for instance, conceives one thought that the three angles of a triangle are equal to two right angles ; a second thought that the two sides of a triangle taken together are more than the remaining third side ; a third thought that all the straight lines drawn from the centre to the periphery of a circle are equal to each other. Thus he has two judgments or intellectual conceptions about one figure and one judgment about a different figure. Yet there is no change or variation in any of those judgments ; for they are invariable in quality, and they do not issue forth one from the other by a chain of causation in the Being of Intellectuality, nor can they be changed one for the other. All these three judgments are an absolute unit in the knowledge of the compound beings of universal existence ; they are external of those beings and beyond them, and self-existing in the oneness of the knowledge of universal existence. To man they appear singly because his brain cannot comprehend all the compound objects of the universe and judge about them at once in their general existence, at every given instance of time. But the Being of Intellectuality, Absolute Wisdom, Divinity which contains in itself all compound objects that were, are

and ever may be—embraces within itself the knowledge of the universe as one absolute unit. In it, therefore, all the intellectual judgments which are the very being of the entire universe in general, are one absolute unit in all eternity. The pure human intellect, therefore, as a real being, is not merely caused by God, because it is actuated by a different intellect of actual existence, as Spinoza opines, but it is Divinity itself, the Being of Intellectuality. The imagination of man, however, such as will, lust, love and all superstitious beliefs, foolishness and all vicious inclinations, as they are always changing, being produced only by the accident of matter and force, not directly by pure intellect, are not modes of the attribute Cogitation in God, as Spinoza says ; but they are modifications of the universal matter and force, which is positively not Divinity. To express this more clearly, —all the acts of imagination in man as well as in animated beings, in each according to his disposition and bodily peculiarities—are merely forces that are active in matter ; it is the feeling and emotion, the material vitality of animal and man. They change and vary, issue forth one from the other and one after the other in the succession of causation by the action of the forces in their nervous systems—in the matter of the universe. But the intellect of man, which conceives judgments about the knowl-

edge of the existence of the compound objects which are in the man himself and which are outside of him, is not a force working in matter. This human intellect is not *in man, not in his bodily composition*, but it comes to him through the human brain. The man with the human brain (which is an instrument of thought, as the microscope and the telescope are instruments of vision) conceives of universal existence by the reflection of thoughts or cogitations which are the Absolute Universal Wisdom. The glory of Universal Wisdom fills the whole universe, and the human brain is the instrument of reflection in which the Universal Wisdom is reflected. Wisdom itself is the knowledge of wisdom, which is neither active nor actuated; it has no variety of concept and no mode; it does not reveal itself in single, various and differing aspects; it is one absolute unity in itself, without any change in all eternity.

The error of Spinoza, and of all the philosophers who preceded and who followed him, is that, since man cannot form a judgment in his mind before he knows some preliminary propositions and axioms, and has already experienced and experimented with many single phenomena by his senses, as I have said before, all the judgments of the mind are, according to their notions, single concepts of the single objective objects in the matter of the brain—like all other

muscular senses, and like all images of the imagination of man and of all animal beings, issuing forth one from the other and following one another in the order of causation in the force and matter of the objective world. So that the "mental changes" in the mind are coming and going in the chain of causation, just as the material changes of the bodily constitution itself. Many of the ancient and modern philosophers have, therefore, assumed that the intellect of man is the same as all other active forces working in matter, and that there is neither a separate existence to the consciousness in man nor an absolute substance in the universe besides force and matter. Upon this assumption were based many systems which differ one from the other in their singularities, but which are all confused by this one error, that they know not and understand not the real nature of things by their previous causes.

When we come to inquire into the nature of things before we have a clear knowledge of their previous causes, we see that man, as a material being, is an accident of the changeable universal matter. Working with the matter of his brain as with an instrument to conceive of the being of all creatures, of their appearances, nature and causes, he must form in his mind an image of the thing which exists in actuality, in order to have an abstract existence of

that thing in the mind. When we think of a mathematical triangle, we must at the same time have a physical triangle in the mind. The atoms of the brain, being reflected by the matter of the physical triangle through the sensual perception, are grouped together in the form of a triangle in the brain, so that we are enabled to judge by the matter, the triangle *in acto* about the triangle *in abstracto*. Thus we get the abstract triangle only after the actual or physical triangle has been formed; the actual triangle, which is material, gives us the knowledge of the abstract triangle.

Those material facts were the bases of all the assumptions of the philosophers and scientists regarding the human intelligence or the consciousness of man, that it is only an active force of his bodily constitution, coming in the brain from the outside appearance of the objective world into the mind. It is the excitements of the motion of his body, coming in the brain through the sensory nerves and transmitting through the brain to the motor nerves, as Professor Huxley has fully explained.

The truth itself, however, teaching us that the material facts of the single things are the causes of our knowledge, teaches us that those material facts, again, are caused by previous material facts. That the material existence of every single thing is the result

of a previous material existence of a previous thing, which was the cause of its existence by a certain law, as a mathematical inference. That the physical triangle, as a material compound object, could not come into existence without a cause that was previous to it; for, as we see it now in realization before us as a particularized compound object, it must have existed in potency (in the possibility) before, in a compound object that preceded it in time and was the cause of its formation. So that the cause of its formation was contained in a previous object which has contained the formation of the triangle before it was formed. And that if we could know the cause which has produced the physical triangle, we could know the triangle in abstraction before it has been formed in actuality. Thus the material existences of all things in actuality, of the objective world, are thus joined together in one general relation in the one mathematical bond or in the one intellectual abstraction of the entire universe, which stands altogether beyond the objective world and before it is formed in actuality.

We must understand, as a positive fact, that the laws of nature, under which all objects of the objective world are subjected, are not caused by the objects themselves. Because the origin of every object is the cause in a previous object under a certain law; it arises in its certain existence through a certain cause,

which is forced to be the cause to that object by a certain law; that law, as a consequence, must be positively previous to the cause and more previous to that object. The whole objective world is nothing else but an aggregate of single objects, each of which came into existence through a certain cause, forced by a certain law. And that there was no time and no place where and when an object, as an object of the objective world, came into existence to generate by itself and for itself the cause and the law of its own very being and existence. The single objects of the objective world, again, although they are separated and different in their singularities, change one into the other and one after the other through the same general causes, under the same general laws by which they themselves came into their singular existence. So that every object in actuality, in its objective state, is related to another object in a deeper unity, in its subjective state; and that object in its objective state is related also to another one in its subjective state, and so on. That all the single objects in the endless universe, of the objective world, are related to each other in one general relation, in the one subjective world. That the material existence of the physical universe does not bring about the abstract or intellectual existence. That the general relation or the abstraction of the objects in the mind, the causes

and laws, are not in an abstraction and intellectual existence, because these objects are in the actual existence from which they were abstracted ; but the objects are in their actual existence only because they have the possibility in abstraction, in the one general relation and in the intellectual existence, to be in an actual existence. That the abstraction of all things contains in its possibility, in its potentiality, the relation of all things that can be in an actual existence, before they were in existence, and the potentiality itself is the mathematical result from the intellect, *previous to All*. So that if we know the cause, we know also the effect it produces ; and if man could know the causes of all compound objects of the universe, he could have in his mind the whole universe before it was ever formed, before it came into actual existence.

Now what I have said before—that the mechanic has a mental image in his brain of the machine which he intends to build before it is constructed in actuality, only because he has some preliminary propositions and axioms, and only because he has experimented with many single phenomena—I mean to say thereby only this, that the new constructed machine is a mathematical inference from many physical objects that are previous in existence. So that, since the mechanic has many single ideas of many single things

in his brain, which are subjected under the subjective world by the mathematical inferences of the whole mathematical bond—standing by itself in a perfect absoluteness previous and beyond the physical world—all the ideas of those objects in his brain, therefore, are converted into a subjective thought, to meditate a new system of forces: a new machine. Should we assume that the objective existence of the physical objects were not subjected under a subjective world, all the ideas of the many single phenomena, of all the single things, were, then, only single concepts in his brain without any relation to each other. For all the material facts of the material objects represent only the objective forms of the objective existence of the objects, in their being separated and different one from the other; and the association of the ideas in the brain through such material facts were then only single concepts separated and differing one from the other, and they were never able to be composed in one general thought, to allow any inference, nor any analytical or any synthetical result. If you put in your pocket a watch, a chain and a ring, you will have in your pocket three different things which never will come, in your pocket, to be one thing. The physical universe as a whole or the totality of the objective world is nothing else but the single parts it contains, and the association of ideas of many single

parts in the brain were only single ideas of single things without any relation to each other. You may combine many single things in one chemical combination to become one thing; but what will you have then? No more and no less than before. If the ideas of all things were not, in an absolute general relation, previous and beyond all things; if the objective world were not subjected under the rules and laws of a subjected world beyond it, in a deeper unity, all ideas in the brain of man were never able to be combined in one relation, in a deeper unity, to contrive thoughts or to meditate something new. No mechanic and no inventor was ever able to construct or to invent any new system of forces, any new machine or any new invention.

Thus, we are forced to come to this positive conclusion: that the objective world is subjected under the Subjective World, and that the ideas of all things are previous and beyond all things, in an absolute relation. The man, therefore, being himself a single object of the objective world, transferred from the Subjective World through the potential into the objective world, must be returned, when he comes to contrive thoughts, from the objective world through the potential into the Subjective World. He must perceive the objective forms of the objects by his senses, which are objective instruments to bring over the objective

forms into a potential world, in the brain, in which all ideas are associated in a potential state, as those ideas are abstracted from the things and associated in one instrument. In that state they are nearer to their previous generality and produce a lower kind of knowledge, which may be called the "Cognition," to which belong all the sensual perceptions and all kinds of imaginations in animal and man. When a man remains in that state he possesses only the potential knowledge as all animal beings ; but when he exerts himself to contemplate, to meditate and to judge by the same ideas upon the same ideas in the brain ; and as each idea in its previous Subjective state contains all the infinite ideas of the Subjective World in one general relation, all these ideas in the brain of that man become more and more generalized, nearer and nearer to their previous Subjectivity, to bring that man to the higher degrees of knowledge, to contrive thoughts, to meditate new machines, to scrutinize the mysteries of the universe and to be in Divinity itself.

We thus arrive at the positive general conclusion of the nature of creation in general by the above demonstrations. Every particularized compound object in the universe is the issue of a cause that preceded it, and that cause, again, was generated by another cause which was still more previous and so forth without end. All compound objects come one from

the other and one after the other by a certain order, by a chain of certain causes without beginning and without end. Thus all the causes are joined in the one general order, in an everlasting bond in the one principal cause which has brought the universe into actual existence. So that the actual existence of the universe consists in the potential existence of the one principal cause. And, again, all the subsequent causes come from and merge into the one principal cause according to certain absolute laws, which are the laws of nature, or rather the laws of Intellectuality which never change. That we have no manifestation in nature which is not formed by the mathematical inferences, which are the laws of Nature. That if we know the cause of a certain manifestation we have an image of that manifestation in our mind before it ever comes into actual existence. That all the working causes of the universe and all the manifestations of nature which follow these causes exist through the laws of Intellectuality which preceded them. So that the actual (or manifested) existence of the universe, which is the matter we have before us, was generated in potential existence in the general cause, and the general universal cause was produced in the Being of Intellectuality. We thus arrive at the general and absolute judgment that the Being of Intellectuality, which is Absolute Wisdom, eternal and unchangeable

Truth, contains within itself all the compound objects that were, that are and that ever shall be in *manifested* existence—in one absolute *ideal* existence. Absolute Wisdom is the abstract image of the whole universe in general, and this is the laws of nature. The laws of nature, therefore, which are the laws of Wisdom, constitute the everlasting general existence in the Being of Intellectuality itself, from which the universe as a whole, in its potential state and in its manifestation, is an Absolute Emanation, through an absolute one intellectual cause, of the Absolute Intellectuality.

Absolute Intellectuality is the general intellectual image of all intellectual objects that can be thinkable in the Absoluteness of the Intellectuality, as mathematical inferences in one mathematical bond, standing by itself in a perfect Absoluteness in all eternity. It is neither active nor acted upon, for there is no activity in pure intellect, which never changes. The Intellection of Intellectuality or the Cogitation in it is identical with it—neither active nor acted upon, it is unchangeable. The Cogitation itself is the all-embracing thinking power, so to speak, in Intellectuality. Thinking of one mental image of the infinite number of the mental images, it thinks with the same thought all the infinite mental images of all the intellectual objects that can be thinkable in an intellectual existence in the Absolute Intellectuality

without end. For the knowledge of one intellectual thing contains in itself the knowledge of the whole infinite number of the intellectual things that can be thinkable in Absolute Mind; one mental image is the inference of the other, and, at the same time, the inference of each of all the countless images that can be in an Intellectual existence; they all are One in their mutual intertwined relations, as the Laws of Intellectuality, conceived in one thought, the Absolute Mind. So that the Cogitation of the mental image "A" cogitates at the same time the mental image "B" and the mental image "C" and all the infinite number of the mental images, and the Cogitation of the mental image "B" cogitates at the same time the mental image "A" and the mental image "C" and the whole infinite number of the mental images without end, and so on. That in the infinity of their infinite number dwells the infinity of the infinite inferences of each other; and in the infinity of the infinite inferences dwells the infinity of the infinite number. So that the Cogitation oscillates from one infinity to the other in the Intellectuality; and oscillating from one infinity of the infinite number into the other infinity of the infinite inferences, and oscillating again from the infinity of the infinite inferences into the other infinity of the infinite number, produces *Intellectual Waves* in the whole Intel-

lectuality, through which an infinite *Intellectual Light* radiates and photographs a *Spiritual Substance* qualified to the Intellectuality, in which all mental images *pass over at once*, in an absolute generality, from their *idealistic state* in the Absolute Intellectuality, into a *potential state* in this Spiritual Substance. This Spiritual Substance I call the Universal (or Absolute) Essence; (the meaning of the term "Spiritual Substance," its nature, existence and its manifestation, will be fully explained further on). And since the Absolute Intellectuality is the Intellectual Image of all the objects—that ever can be in an universal existence—in one Absolute Generality, and in which each of all the intellectual objects in their One Unity are at the same time mentally cognizable and separately conceived as singular Intellectual Waves, one in the other, in their mutual intertwined relations in the Absolute Generality, the radiation of the Intellectual Light, therefore, is conceived of a two-fold one: The radiation of the Absolute Generality is the Universal Essence in its generality, its potential state, and the radiation of the Intellectual Waves as separately conceived, one in the other, is the universe in manifestation. Let me explain more clearly: It has already been proved before that the universe in general has no limits, no beginning and no end; it is an eternal being, but the cause of its existence is not

contained in itself, for it is ever changing, so that it is a *self-standing being*, but *not a self-existing*. It is also proved above that all the manifestations of objects and all the transformations of forces are subjected under the mathematical inferences, issuing forth one from the other and one after the other, which are, every one, in an absolute existence in the mathematical bond, standing by itself previous to all things and beyond them, which I call "Absolute Intellectuality," the God of the universe. So that the absolute existence of the Absolute Intellectuality is the eternal existence of the universe. As long as the Intellectuality exists, the universe exists; if, however, the Intellectuality should cease existing one second, the universe would not be in existence. But the Absolute Intellectuality is neither active nor acted upon, as I have proved before. There was no cause previous to Him which brought Him into existence, and there is no succeeding cause which made the universe emanate from Him into existence. For, as He has no cause previous to Him—because, as he is never changing by His own nature, in His Nature is contained His Eternity—so, also, he has no succeeding cause which made the universe emanate from Him, because, as He is the Intellectual Image of the universe by His own Nature, in His Nature is contained all mental images of the particularized objective world, as a whole, in

an Absolute Subjectivity, in which each mental image is a mathematical inference to an objective object which is subjected under it *to be produced*. The universe, therefore, must be an eternity with Him; so that there was not, there is not, and there will not be one moment in which God was, is, and will be without the universe. But it is not an eternity in Him, as is revealed in its manifestations, which are changeable. The creation of the universe, therefore, as an eternal creation, is an eternal emanation of the Absolute Intellectuality; not as a working cause in Him which could have a beginning or end, but the thinking power—the Cogitation itself—is the Absolute Eternal Emanator by its own nature. Since in the Absolute Intellectuality are cogitated all objects which can exist in an objective world according to the Laws of Intellectuality in one eternal, general and absolute totality, as a mathematical bond to the whole objective world, which each of them is subjected under its inference to be produced—and it must be produced, not as a necessity by a certain working cause, but as a mathematical inference—it is the Absolute Emanation in which the universe as a whole in its potential generality is ever produced. And since the Cogitation in Intellectuality oscillates from one infinity into the other, producing thereby Intellectual Waves in the whole Intellectuality; so each Wave, each mental

image, each mathematical inference, is mentally separated, known and cognizable one in the other in their mutual intertwined relations and separately conceived in the one Absolute Generality, which each of them is an inference to a certain object of the objective world, subjected under that inference to be produced in an objective state—it is the Absolute Emanation in which the universe in its manifestation is ever produced. So that each object becomes existing and cognizable in actuality, one from the other and one after the other, by the mathematical inferences, the laws of nature which are the Laws of Intellectuality as they all are conceived one in the other in the Absolute Intellectuality.

This emanation which we conceive as twofold, is contained in one absolute unity. The Cogitation of Absolute Intellectuality, which is the meditation of the Intellectual Laws for all objects of actual existence—that they should exist in the objective world according to the Laws of Intellectuality—is the Intellectuality itself, the Intellectual Image of the entire universe in one Absolute Unity. Thus, the Absolute Generality is contained in each and every one of the infinite number of the Intellectual Waves,—in every mental Image is contained the whole Intellectuality; as one inference contains all inferences that ever can be inferred by the unlimited mathematical bond, the

Generality, therefore, cannot be conceived as a totality of single images, but as a Generality of a perfect absoluteness, as an Absolute Unity. That the Intellectual Light of the Intellectual Waves, which are separately conceived as single images, through which the Absolute Emanation of these Intellectual Images emanates the universe in its particularization, in its single parts, which are separately produced, is entirely the Absolute Emanation of the Absolute Generality itself, as the whole generality is contained in each of the infinite number of the Intellectual Waves. So that the universe in its *potential generality* and in its *objective individuality*, which seems to be in a twofold existence by a twofold emanation, is also but in *one eternal existence*; the *external* existence of the objective world, which is the non-absolute existence of the individuality, is in the absolute *intensive* existence, which it has in its general potency. That the totality of each individual intellectual object, which is also an absolute generality, distributed through the entire objective world; that the objective existence is contained in the Subjectivity of each of the Infinite Generalities, in one absolute Unity.

By this we can well understand the creation of the universe as an Emanation of Absolute Intellectuality, and the reason why the human intelligence does not emanate from the things that he meditates in his

mind, from their intellectual existence in the human mind into an actual existence in the objective world. I have proved before that the man who arrived to the highest degree of the wisdom of the mind is, then, the very substance of Absolute Intellectuality, the Divinity itself, and that the Intellectuality emanates all mental images that are cogitated in intellectuality from their idealistic state into their actual state through the potentiality of the universe. The question arises, Why did not the mind of man bring forth the compound objects which it cogitates in the same manner as the universe was brought forth from the Absolute Intellectuality? The wisdom of the mind in man is the very wisdom of the Absolute Mind of Divinity, and from the latter come forth the compound objects of the whole universe, which constitute the universe in general and in its particularizations, so that these compound objects exist in actuality as they are known and conceived in the Absolute Mind. Why, then, should not the compound objects come forth which are known and conceived in the mind of man, so that they should exist in actuality as they are conceived in the mind of man? When the mind of man conceives the image of a triangle, why should not that conception become a triangle in actuality? The truth, however, is, as I have proved above—the Wisdom of the Absolute

Intellectuality is One, Eternal, and an Absolute Generality. The Absolute Mind embraces all that Wisdom can conceive in one absolute Generality. In this one eternal and absolute Generality, through the whole Intellectual Waves, springs up the universe as a whole, its one generality, *at once*, by one eternal general and absolute emanation. For all the compound objects, in endless numbers, which can exist by the Laws of Intellectuality in the endless dimensions of the universe, are comprehended in one eternal general and absolute conception of the Absolute Mind, in the very Being of Intellectuality, in the name of Jehovah, the Lord of the universe. By this conception, they issue forth from their absolute existence in the Mind into their absolute existence in potency, in one general emanation, as the essence of the universe in its absolute existence. For the general emanation of all the compound objects in general, as they exist in potency in the universal essence, is as absolute an existence as that of their existence in the Absolute Mind itself. But the wisdom of the human mind, although all that man conceives by pure wisdom is the conception of the Absolute Mind itself, yet, inasmuch as he is a particularized compound object in his material body, and he cannot comprehend in one general and absolute conception all that endless wisdom can conceive, and he cannot, therefore, bring

forth out of himself the universe entire, as a whole, which is endless, eternal and absolute he cannot, therefore, bring forth out of himself any particularized compound object, of its singular state, of which his mind conceives, because his wisdom is an eternal conception, while the particularized compound objects in their singular states, which he conceives, are not eternal in actuality, and not of absolute existence, and the eternal and absolute wisdom of the human mind cannot produce a non-eternal and non-absolute compound object. When a man conceives the image of a triangle, his conception is eternal, absolute and unchangeable, so that, if all the triangles which exist in actuality in the universe should be destroyed and put out of existence, the triangle of his conception cannot be destroyed or put out of existence; in this wise, no object of actuality can emanate from an image conceived by the human mind. Thus, from the Wisdom of the Absolute Mind emanates only the universe *as a whole*, a spiritual image of the Intellectual Image, the universe in general in its absolute existence in potency, which is never destroyed, but not the particularized compound objects in their existence in actuality, which is not absolute, and which constantly suffers destruction. For every particularized compound object changes from the image of one compound object into the image of another

compound object after the previous image—which was only an objective image of the objective world, appearing in time and place—is entirely destroyed, because its existence of objective appearance is non-absolute, and it cannot be seen in actuality through the emanation of the Absolute Mind, from the very Substance of God, in which all Mental Images that can be conceived in the unlimited Absolute Mind are contained in each one, as it is separately conceived, in a perfect Eternity. Therefore, the particularized compound objects of their objectivity which the mind of man conceives in its subjectivity, cannot issue forth from the subjectivity into objectivity, to come directly into actual existence.

Hereupon, we have to ponder and meditate still deeper: If the particularized compound objects do not issue forth from the Absolute Mind, in that their existence is non-absolute, how do they come into existence at all? Since the universe itself is an absolute existence, how is it possible that the absolute existence should become non-absolute? The truth itself, however, is conceived clearly and plainly. The particularized compound objects are not emanated from the very Light of the Mind, from the Essence of Intellectuality; nor do they issue forth from the essence of the universe to assume an individual existence, so that the objective appearances should have

an objective separated existence of any kind of any reality. But inasmuch as the essence of the universe issues forth from the very Light of the Mind, as a radiation of the Intellectual Waves or as a photographic image, its absolute emanation becomes a general activity in the universal essence; and by this general activity the universe is actuated. It vibrates itself in *spiritual waves* and reveals itself according to time and to place in particularizations, coming one from the other and one after the other as they are conceived one in the other in the Absolute Mind, in the Essence of Intellectuality itself. Indeed, all these particularizations are not absolute particularizations, not beings of individual existence by themselves, but their existence is the absolute general existence in the universal essence, in one intensive bond in the one general, absolute cause. The *physical waves* which appear before us in the forms of particularized compound objects, in different states of energy, in magnetism, electricity, heat, light, and so on, changing one into the other and balancing each other in time and place by a non-absolute existence in the objective world, are contained in, and are nothing else but the *spiritual waves* of the universal essence, the substantiations of the general activity, in an absolute existence. The particularized compound objects which are perceived by their *outward* existences in the

objective world as single images, separated and differing from each other, are conceived by their *inward* existence in the *subjective world* as an absolute generality, inasmuch as every single object is the inference of the previous one, and that previous is the inference from a more previous, and so on without end, and so also it contains the inference of the coming one, and that coming one will contain the inference for a more future thing, and so forth without end ; so that each single object, as it is one mathematical inference in actuality, in its objective existence, it contains in itself all mathematical inferences that ever can be inferred in the one absolute mathematical Bond of the Subjective World. The physical waves in actuality are the spiritual waves of the potentiality of the universe as a whole, which are *perceived* by their different *objectivities* and *conceived* by their one *Subjectivity*. The universe as a whole, as a self-standing being, in that it has no beginning and no end, no time and no place, is the general inference of the whole mathematical Bond, the Absolute Emanation of the whole Intellectuality, dependent upon the infinite number of the Intellectual Inferences—of the Intellectual Waves of the Absolute Generality ; it vibrates in such an infinite number of spiritual waves as the infinity of the Intellectual Waves in Intellectuality is conceived. Each Intellectual Wave in Intel-

lectuality is an Inference to a spiritual wave in the potentiality ; and as every Intellectual Inference—each Wave—contains in itself all Inferences that ever can be in the whole mathematical Bond, and at the same time each Inference is bounded to the whole boundless number of the whole Intellectual Inferences by their intertwined relations as an Absolute Generality ; that every Mental Image, containing all Mental Images that ever can be mentally conceived by a pure intellectual conception, is also bounded and intertwined, related to the whole Generality ; each intellectual Wave, therefore, being an Absolute Emanation for a spiritual wave of such a kind in the potentiality of the universal essence, emanates itself its whole Ability, its Intellectual Faculty and Property in that spiritual wave of its kind, in order that this spiritual wave should be developed and revealed in actuality, in all the physical waves that ever can be in an actual existence of the objective world, *in order of creation*, as it is contained in that Intellectual Wave the whole Mental Images of Intellectual Existence. Thus, the universe as a whole, as a spiritual generality, emanated by the Intellectual Light of the whole Intellectual Waves of their Absolute Generality, in which each of them contains the whole Generality in itself, manifests and reveals itself in the whole physical waves that ever can be in an actual existence by their intertwined

relations, in a certain order of creation, of causes and laws of nature. So that each physical wave, each object, each phenomenon, force, impulse and effect must be produced by a previous one, through a certain cause and by a certain law, and must be the production of a future one, through a certain cause by a certain law, to be intertwined related to another physical wave, to another object and another phenomenon, and to be influenced by each other through certain causes and laws, which are ruled, controlled and sustained by the Intellectual Laws of the Being of Intellectuality.

CHAPTER III.

MATTER AND FORCE: THE UNIVERSE IN ITS POTENTIALITY AND ACTUALITY

PREFACE.

To analyze or criticise all ideas, all hypotheses, theories and systems which have been meditated and composed on the field of these sublime subjects, "Matter and Force," from the ancient philosophers until the latest scientists, is an impossibility for a single person in a single book; and perhaps there are many of them which have no value for any analytical or critical review, and no importance to warrant spending a little space or a little time on them. But, as I venture to establish a complete theory, containing the pure conception of the universe entire, and to disclose the whole mysteries of nature, and at the same time the brains of men are filled and packed up with all the fanciful and fantastical notions of all the different and various schools, so that it is of great difficulty to bring in something clear and pure before those brains are purified, I, therefore, am compelled to analyze and criticise many ideas, hypotheses or theories of the most and the greatest philosophers and scientists, from the ancient till the modern times, in order to purify the brains of men, to enable them to conceive the eternal truth of the universe.

In ancient times, Democritus was the founder of the atomic theory, a theory of the constitution of bodies, which asserts that they are made up of atoms, indivisible parts of matter; that matter, through which all bodies of the universe appear before us, consists of those small, indivisible particles, called atoms. His opponent asserts that all bodies are infinitely divisible, and that there are no atoms, small indivisible particles, in existence.

Anaxagoras propounded the continuity of matter, under the name of the doctrine of *homœomeria*, or of the similarity of the parts of a body to the whole. This is the doctrine of the infinite divisibility of bodies, that the smallest conceivable body has parts, and that whatever has parts may be divided. According to the atomists, the atoms do not fill up the universe; there are void spaces between them. Their argument is, that if there were not empty spaces between the atoms, there could be no motion, for the atoms which give way first must have some empty place to move into. The opposite school maintained then that there is no vacuum, that every part of space is full of matter, and that all motion is like that of a fish in the water, which yields in front of the fish because the fish leaves room for it behind. Thus both theories of those two different schools were, and are, the business of science to consider, and

they themselves are not true and their arguments not correct.

The atomists asserted very strongly the distinction between matter and space, that the universal space is positively not matter; and as there is not anything beyond matter, according to their views, the universal space is, consequently, nothing else but an absolute nihility; that the universal space, which is nihility, contains in itself the atoms, the origin of matter, and those atoms swim from one place of nihility into the other, while such an idea is a positive absurdity. It is true, the atoms must have some empty places to move into, but those empty places must be *something of existence, not nihility*, for nothing can be conceived to exist in nihility; and as we know clearly that the motion of an object is always transferred on the other through the empty spaces between them, that the empty spaces serve as a conductor to the motion, the conductor must be positively an existing thing, not a non-existing. The opposite school, on the other hand, asserting that the whole universal space is full of matter, without any empty spaces, they have no right any more to assert that matter is divisible. A piece of matter can be divided into parts only because empty spaces, which are not of that kind, divide it into those parts. The division of matter is possible only on account of the empty spaces

between the divided parts; and if there were not empty spaces in the universe, matter would never be divided. Their argument that all motion is like that of the fish in water, which is motion of matter in matter, is also not correct. A fish swimming in the water moves onward only because the particles of water are separated where the void spaces, which are not water, are between them; the fish has the power to separate the particles of water and to pass between them in the empty spaces. But were those particles of water so closely joined together that there is not any void space in the water, the fish would not be able to move in the water. Thus we are forced to this conclusion: that there must be empty spaces between matter in the universe, but that empty spaces, just as they cannot be matter, cannot also be nihility and that both those theories are not true.

Still, the question whether atoms exist is of too great importance to all philosophers, idealists as well as realists, to be passed over in silence here. The solution of this problem is at the foundation of all our speculative and practical sciences. But not one of the thinkers of ancient and modern times has as yet furnished a true and positive answer to this question. Moreover, we have to inquire about this principle itself. What is matter itself, the principle of creation? What is the origin of the forces working

in or on matter? What is the soul of matter or the intelligence that exist in matter? And what is the tie and relation between matter and intelligence? I, therefore, am compelled to say that, as I am come to teach mankind the way of the truth, that they may attain the highest knowledge, that all men may understand the eternal truth fully and clearly, it is my duty, first of all, to *do away* with all the errors which were born in the lap of the early and the latest philosophers and scientists, together with the many errors which were generated, without their knowledge and carefulness, by the dominating religions, propagated among men by the various religionists; for the one and the other alike, the philosophical and scientific, as well as the religious errors, are stumbling-blocks on the road of mankind, preventing them from understanding the eternal truth clearly. I begin, therefore, now, from the teachings of the first of the Greek thinkers, from the great philosopher, Thales of Miletus, in Ionia, who has established the Ionian school of philosophy, and who was the first one to put up matter as the principle of the universe, as an ever-abiding principle of absolute existence. From his teachings, moreover, were generated and invented and built up and established all the many and various systems of philosophy and natural sciences, the old and the new ones, since his

days down to our times, for the last two thousand and five hundred years. And again, as we have not a single system by which all the questions that may be asked could be answered, I, therefore, must cite in brief many of all the systems of the most philosophers and the greatest scientists, whose names are known since that time up to the present; from that of Thales till those of Professors Helmholtz, Thompson and Maxwell, and to prove that each of them was built upon the ruins of the one that preceded it, and on the foundation which has been laid by Thales: This foundation, however, was false, for in its turn it was based on the errors of the idolatry of those times.

Thales has advanced the theory that man has no right to consider the things that exist in actuality as things of absolute existence; but only the thing from which all things issue forth and to which they all return, is of real absolute existence, and this thing is the principle of the universe entire. When he saw that the seed of every existing thing was wet, that food is wet, also that worms developed from humidity, and humidity in general was the producer and sustainer of everything, he put up the thesis that water was the principle of everything that exists in the universe. Water is the principle and it is of absolute existence; and all the things that are in the universe come from it and return to it.

The words of the philosopher Thales were not written down by himself in a book. All his utterances and opinions were handed down by tradition through the disciples of his school. The philosophers that followed him could not, therefore, find out his theological views and what he thought of the relation between the various divinities or between the souls or spirits and the primary principle of creation,—the water. But if we consider well the views of the ancient idolators and compare them with his words which we know, and with the words of the philosophers that followed him, we can well understand his views and the causes by which his opinions were formed. We may thus arrive at a thorough understanding of the causes from which have originated all the views of the philosophers from the earliest generations to those of our time. This will lead us to the eternal truth by a straight and plain road on which there are no stumbling blocks or impediments and no misleading errors.

In my MS. "Divinity and the Cosmos," I have proved that the first lawgivers of the ancient times were great thinkers. Many of them have conceived the eternal truth, the general existence of the universe entire. By their wisdom and understanding they have attained the highest degree of knowledge and reached the final end of Divine Wisdom. But they

were in the habit of concealing their knowledge of nature from their fellow-men, who were in a very low degree of intellectual development at that time. They, moreover, lacked much technical knowledge, not because they had not the abilities for it, but because the necessity did not exist to engage in it. They accordingly did not possess the knowledge of printing as we have it at present. This is the reason why many opinions were not written down but transmitted orally.

One of the first great lawgivers was he who was brought to the East Indies where the highest and mysterious essence was designated by the name of Braham. This is the invisible and uncreated essence who is the cause of His Own Existence and who has no likeness and no similitude. They declare Him holy and exalt Him by very lofty and awful designations. Among these designations are the following: "Braham is the image of wisdom, but not the total sum of individual knowledge, for He is indivisible, free and beyond all activity, good or evil. He is the sight of vision, and therefore no eye can see Him. He is the hearing of hearing, and therefore no ear can hear Him. He is the thought of thinking, and no thought can conceive Him, for the knowledge of knowledge cannot be known to every knowledge. As the light of the lamp is visible by itself and requires

no other light to make it visible, so is Braham the light itself. He is the abyss of wisdom ; by his word the earth, the heavens, the sun and the moon, and day and night exist in perpetual motion. All the elements as well as man are an image of Him ; He is the place of the universe, as the sea is the place of all rivers. He is the vision of all images, the ear of all sounds, the heart of all senses, the word of all wisdom. He is the tie which binds together all that exist as a thread of pearls. He is the Lord. He is at the core of all bodies, the great and the small, and always the same, like gold which never changes in substance no matter in what form it is cast. To the fly and to the elephant alike he gives the motion of life ; even the inanimate rocks are His Image. All that He produces He destroys, therefore is He called the great Lion." (Vgl. J. Gorres: "Mythengeschichte der asiatischen Welt, nach Oupnekhad tchehandek.") As I understand by Biblical, Talmudical and old historical facts, the holy name "Braham" is nothing else but the name of the patriarch Abraham, omitting the first letter, "A." The Hindoos called their god with the name of their father. It is written : "But unto the sons of the concubines, which Abraham had, Abraham gave *gifts*, and sent them away from Isaac his son, while he yet lived, *eastward*, unto the *east country*" (Genesis xxv. 6). And a teacher in the

Talmud, with the name Rabbi Jeremiah, said that the *gifts* which Abraham gave them were a *mysterious name** (Trac. Sanhedrin, the last part). Pondering well and without bias upon the systems of ancient and modern times, we must admit that these designations of the ancient Hindoos contain pure and sublime thoughts—purer and loftier by far than the thoughts of all the philosophers of latter times and the ideas of the natural scientists of our own days. Although I do not agree with many expressions of their designations, yet, it may be, the mistakes were brought in by the false translations or even by the traditions. Many of these designations contain the ruination of the philosophical systems of Descartes, Spinoza, Emanuel Kant and his followers, and also the errors of the latest natural scientists. The designation of "the image of Wisdom, but not the total sum of individual knowledge," destroys the system of Spinoza

* The expression 'used by Rabbi Jeremiah is שם טמאה—"name of uncleanness;" but elsewhere in the Book of Genesis, God is represented as saying: "For I know him that he will command his sons and his family after him to keep the way of Jehovah;" hence, Abraham could not have given his sons a "name of uncleanness." Indeed, such ideas did not exist in his times, but were first promulgated by Zoroaster. R. Jeremiah knew, through tradition, that "gifts" meant ideas upon which Brahmanism was based, but, not concurring with these ideas, stigmatized them as "name of uncleanness," while, in fact, they represented the true doctrine imparted by Abraham, or Braham.

and the entire system of Pantheism. The assigned reason for this designation is "because He is indivisible." From this we infer that all compound objects are divisible into *parts*, in actuality as well as mentally, because they are compounds. This destroys the words of Kant, the doubter, who said, "The totality is nothing but the collection of single parts," as he does not know clearly the difference between the indivisible essence and the divisible compound objects. By the designation, "By His words the earth, the heavens, the sun, the moon and day and night exist in perpetual motion," the systems of Isaac Newton and his followers fall to the ground, for they do not know that there is no force working in matter besides motion, and that motion itself is not a force working in matter by itself, but it is a force that is actuated in matter by another force which exists outside of it, as I will prove by arguments in the following pages. Abraham himself, as a Hebrew, called the Holy Being by the name of Jehovah, which means "Absolute Being." It is written: "And Abraham planted an acacia in Beer-Sheba, and called there on the name of Jehovah (the Being of Intellectuality), El (Potentiality, the general force), Olam (Actuality, matter and the particularized forces), which are included in the name of Jehovah, the Lord of the universe. With the same name Moses came to the Israelites, explaining to them

the name of Jehovah by the name of "*Ehejeh Asher Ehejeh,*," or, "I Am that I Am," which simply means, "I am in eternity what I am in every moment of infinite time"—for there is no change in Him; "I am in the world what I am in myself"—for the existence of the whole universe in general and in its particularizations is naught but the Intellectual Existence of the Essence of Jehovah, which is the Absolute Mind. Again, "I am" in eternity in myself and in the universe only because "I am," for there was no cause previous to Him which brought Him into existence and no succeeding cause which made the universe emanate from Him into existence. "I am" in the universe "what I am" in myself; for there is no mental image in Intellectuality which is not emanated in actuality through the potentiality. "I am" in the universe only according to that "what I am" in myself; for there is nothing in the universe in actuality which is not ruled and controlled by the Laws of Intellectuality. "I am" in the universe only that "what I am" in myself; it means that the intellectual Universe is the idea, or the intellectual image, of the physical world. And "I am" in myself even after "I am" in the universe; for He does not manifest Himself in the single phenomena of actual existence, holding the universe in His Mathematical Bond. About the same lofty ideas are to be found in

the writings of the Prophets, and in some places with more clearness. But, at the same time, there was brought into these writings, on account of the numerous writers and in the course of tradition, many ideas which do not agree with common-sense, especially through false translations.

In the course of time, their views were transformed into idolatrous notions by men who did not or would not understand them, or who kept their fellow-men in darkness and led them astray in order to subject them to servitude. They, therefore, put forth strange and morbid notions among men that they should believe that the forces of nature, in their objective appearances, were divinities working in the universe by their own free-will, and that these divinities were the issue of the sublime but mysterious essence, born through strange and peculiar emanations. Through this they strayed away from the truthful principles which had been established by the primitive teachers. By these strange notions they invented various systems of idolatry in every land and in every age. About the same luck afterwards befell the teachings of Moses and the Prophets. After the days of Hillel the Old, since about two thousand years, many of the Talmudists have brought into the teaching of Moses and the Prophets the notions of the idolators of every age, from which three religions—

Judaism, Christianity and Mohammedanism—have developed in the name of the Biblical God, while in reality they erred away, very far, from the truth which is found in the words of Moses himself and in those of the Prophets. All these are explained in my MS., "Divinity and the Cosmos."

But if we consider well the words of their sayings which have reached us, we can arrive at the foundation of their wisdom; by this we can see the errors of the philosophers that followed them and also the error of the Ionian Thales, the first Greek philosopher, upon which all subsequent philosophical systems were built. Thales put up the proposition: "There is one primary element in the universe, and that is water; everything that exists in the universe comes from water and to water it returns." This proposition was derived from *a posteriori* reasoning and by induction. He saw and perceived by his senses that everything that was accessible to sensual perception came from humidity and dissolved into humidity; and as water was the origin of humidity he came to the conclusion that water was the primary principle of creation. But if Thales had not been impressed with the notions of the idolators, if he had not gone to inquire into the nature of things that existed in actuality before him by the perception of the senses before he cleared his mind of the perverted notions

of the foolish peoples which were mixed up with the pure thoughts of their religious legislators,—he would not put up this proposition on *a posteriori* principles and by inductive reasoning. For the judgment by the perception of the senses could never result in a proposition like this that there is *one* primary element in the universe. The senses perceive only the outward of every compound object, and every compound object differs in quantity and in quality from the other compound object which belongs to a different species. If we should mate many compound objects of one species before us we could never get out of them an issue of another kind which might differ from them in quantity and in quality. If we should gather up all the water of the seas and the rivers, purified of the admixture of strange elements, and mix them and blend them mechanically and chemically, we would not be able to compose of them one little fish or worm, or a blade of grass or even a little stone. The fishes and the worms and the vegetables and the stones which we find in the water are not generated by a chemical combination of the water itself, but by a combination of other elements that are not from the water together with those of the water itself. The combination of two elements that are different from each other, only, produces a third thing that is unlike either of them—it differs from them in quantity by

its porosity, and in quality by the forces that are active in it. Thus, from what we perceive with our senses we can never arrive at the proposition that there is only one primary element in the universe which originates all the compound objects which vary and differ from each other. But Thales was a great thinker. In the few words we have from him we can find the systems of Spinoza and of all the philosophers who preceded and followed him. Indeed, Spinoza's system which is the centre of all philosophical systems, precedent and succeeding, is nothing but a commentary on the words of Thales that, "There is but one primary element in the universe, and this is water; all that exists in the universe comes from water and returns unto water." This is the very spirit of the philosophical system of Spinoza who said that, "There is one substance in the universe which contains all in itself and in which all contained is one." The difference between the two is that Thales asserted that water is the substance in which all is contained and all contained is one, while Spinoza who knew that water is not the primary element of the universe asserted that there is one substance in the universe, from which our intellect and matter are modified; a substance which we do not know what or who it is, as Spinoza himself knew it not, even after his assertion that all that the human mind con-

ceives is either an accident or an attribute of that Substance. But as we know clearly that water is not the primary element of all that exists, as Thales opined, because water itself is composed from more primary elements, so do we also know that there is positively not one abstracted and previous Substance, that our intellect *is only a modification of Him*, as Spinoza thought, because our pure intellect, through which we may have a conception of such a Substance, must positively be previous to all; for, if not, we could have no means to think of such a Substance at all. Our intellect, therefore, must be *Divinity itself*, through which we may conceive it. But we know clearly that the philosophical spirit which permeates the whole system of Spinoza is the same that is contained in the few words of Thales. Therefore, if we know clearly that Thales was the greatest philosopher among men, we know also that this greatest of philosophers with his deep research would not make the assertion that there is one primary element in the universe by a judgment which is based on the perception of the senses while sensual perception itself is opposed to his assertion. We know also that Thales has not based his judgment on *a priori* principles and did not reason by deduction. For every judgment from *a priori* principles by deduction starts from the cause that is known first and proceeds to the later; it

begins with the generality and judges about the particulars. We thus form our opinion on the thing that is precedent in time which is the cause of that which succeeds it, and from the generality which is the cause of the particulars that issue forth from it, and we understand by this that we form an opinion about the cause that is prior in time and brings forth its successors, and about the generality which produces its particulars. But Thales did not form an opinion of a cause that was in the substance of water which he said is the first and which should be the cause of the things that come afterward into existence in the universe; nor did he form an opinion on the substance of water itself which according to his view is the general thing, the primary element of all the particularizations of the universe, for there is no cause in the water by which it is actuated to reveal itself in various and differing particulars in the universe. Thales accordingly did not know any cause existing in the water which might bring about the revelation of the beings that come from and return unto the water. Thus also Aristotle said, who lived about two hundred years after him, that Thales had not conceived of the cause that is active in the water when he asserted that water is the primary element of creation. We have, therefore, no other way of explaining the words of Thales and the powerful philosophi-

cal spirit that is contained in these words but assuming that the foundation of his teachings was laid on the basis of the idolatrous beliefs of his time. And this is indeed the right way as we shall see when we examine his words and the words of the disciples of his school and the words of the many thinkers who followed him and wrote down their teachings in books.

I have mentioned before that the foundation of the idolatry of the ancients and of all their mythological legends was laid by the sublime and lofty thoughts of their first religious teachers. These teachers by their wisdom and knowledge assumed that there is a sublime but mysterious essence, perfectly absolute, in whose existence the universe in general and in its particularizations exists. They were wise and understood well that the particularized being of every particular thing existing is not absolute, that it is not an existence by itself. They knew by this that the existence of any particularized thing is the existence of a particularized thing that preceded it and also the existence of the particularized thing that will follow it; and that this is the one general and absolute existence of the universe entire in the one essence of eternal absolute existence. But they knew not or would not explain to mankind the order of creation developing from the absolute general exist-

ence into the non-absolute particularized existence. The priests, therefore, put forth strange and morbid notions among men that they should believe that the forces of nature were divinities working in the universe by their own free will, and that these divinities were the issue of the sublime but mysterious essence, born through strange and peculiar emanations. Through this they erred away from the truthful principles which had been established by the primitive teachers; by these strange notions they invented various systems in every land and in every age.

When Thales came and learned all these systems and found that they were all irrelevant to the existence of actuality, that he could not explain through them the non-absolute existence of matter that was before him,—how it could emanate through the divinities from one essence—he brought them into the existence of actuality by the system of Pantheism which he invented by his wonderful research. He knew that the existence in the universe is one general and absolute existence, and that this is the one principle, or the one essence that had been known to the ancient teachers; and he understood well that this principle is the true principle of nature. When he saw that all the forces of nature are working in matter; that these forces which the idolators regarded as divinities are intertwined in the matter which is

actuated by them ; and when he considered the views or sayings of the ancient Hindoo priests, that water was the beginning of creation, the general activity of all that existed in the universe, as Aristotle testified of him, saying that, "the opinion of Thales, who asserted that water is the primary element of all creation, is a very ancient opinion, coming from the Hindoo priests, who lived many ages before him, who said that the sea, *Okeanos*, and his wife, *Thetis*, were the revelation and the creation of the universe entire" —he went by those views to judge about the things that exist and are in actuality perceptible to the senses ; and by his deep research he examined the compound objects which change one into the other and one after the other in one eternal bond, which knows no destruction and no annihilation for all eternity. From this he judged also on a *posteriori* assumption by induction about the *a priori* principles which he had adopted before. Thus, he arrived at the conclusion that the one essence of which he knew before is water, and that "all that exists in the universe comes from water and returns to water." According to his views, water is the only thing that exists in the universe, and the water reveals itself in particulars and by various and differing accidents which come one from the other and one after the other in the order of creation, by the one general activity in

the water, which is the perpetual motion that is going on in it. All the various and different images of the various and different compound objects in the universe, in the concrete substances, the vegetables, the animals and in man, with their various and differing forces which are the divinities or the souls that work in them, also the intelligence of man, are naught but the one essence—water. They all come from water, and to water they return; for water is the primary element, the divinities, the universe in general and in its particularizations. From the few words of Thales, therefore, we see clearly that he was the first founder of the system of Materialism, in that he believed that matter is of absolute existence; and that he was the founder of the system of Pantheism, in that he believed that the divinities or the souls of the universe (which, according to his views, were the forces of nature working in the universe) are one in matter.

We see the same in the words of Anaximander, who comments upon the saying of his teacher and friend, Thales: "The one primary principle (*αρχή*) is eternal, endless, unlimited and undefinable." He says: "Everything comes from it and everything returns to it, according to the order of creation and time." Anaximander thus gives us a deeper insight into the teaching of his master. He shows us that

the primary principle of creation is properly not the water we perceive in quantity and quality; for there is no particular quantity or quality in the one principle which is "unlimited and undefinable." But he recognizes the primary principle in the water that is not cognizable to the senses before it assumes its quantity and its quality. There is, according to this, one abstract element of absolute existence, "eternal, endless, limitless and undefinable," which is the one primary principle of creation, the divinity or the soul of the universe itself, in whose indissoluble potential existence all compound objects exist, and which in its first manifestation reveals itself to our perception as water. His disciple Anaximenes opined that "the one primary principle is air," which, when it becomes rarefied and extended, appears as fire, and when it becomes condensed, appears as water, earth or stones; all that is came through this into existence. These first three philosophers of Greece, the founders of the Ionian school, inquired after the primary general principle of the universe entire, which they knew from the traditions of the primary idolatrous systems. They discovered that principle in a material element which reveals itself to human perception, and they assumed that this material element is of absolute existence, that it is the one general essence and the one fundamental principle of the universe entire.

But they differed in their views about the first revelation of this essence—how it issued forth from its absolute general state into non-absolute particularized existence. Each of these three philosophers progressed one step further. Thales assumed that water, as we perceive it, is the principal element; his disciple, Anaximander, assumed that water in its abstract state in potentiality is the element; and Anaximander assumes that air, which is previous to water in creation, is the primary principle. But all three, with the disciples and friends of their school, settled upon the systems of Materialism and Pantheism, which are identical in their origin, as the true systems.

Now that we know clearly the assumption of these first three Greek philosophers, we know clearly, also, the methods of their inquiries, and we know clearly, also, that the causes which affected them to make their assumptions were the errors which had been impressed upon their minds by the views of the ancient idolators. Those idolators who believed in the views of their religious teachers, that there is one absolute essence in existence in whose being the whole universe existed, and that the particularized being of every particularized object is not absolute and not a self-standing internal existence—but who knew not the gradation of creation from the general absolute existence to the particularized non-absolute existence—

assumed that matter in which the compound objects are revealed to us is created and destroyed as it is changing and varying by the will of the divinities which are the offsprings of the one absolute essence, and which are the forces working in matter by their own free-will. The one general essence, according to their belief, brought forth a great many divinities which were all the offspring of *Elohim* (the general power of creation), and equal in degree, but which afterward varied in their actions and became opposed to each other, and worked in the universe according to their free will. Through this the idolators explained to themselves the nature of the universe, with all the phenomena they perceived, the good and evil, light and darkness, and every variation and change. Such are the teachings of Zoroaster, and such were the teachings of the religious masters that preceded him and from whom he took his ideas. And when the philosopher Thales and his disciples came, having all these idolatrous teachings in their heads, and took notice of the matter that existed before them and the force which worked in it, that the force did not change and vary by its free-will, but by compulsion, and the matter which is changed and varied, constituted the universe which was not created and not perishable—they formed the assumption that the one absolute essence which is divinity, and all the

offspring of divinity which are the forces working in matter as well as matter itself, were all one in the universe ; that the universe entire is divinity, the one primary principle in the universe itself, and this principle itself reveals itself and becomes known to us by its own natural compulsion, without any precedent or succeeding cause, in all the images and formations in the endless extent of the universe, in the matter of various and different compound objects, which came from it and returned to it in all eternity.

But instead of this, the wise men of the Ionian school should have penetrated the mystery of the one absolute essence itself, to understand its quiddity and identity, to distinguish between their own assumptions and that which had come to them by tradition, and to understand that the one absolute essence, as such, could not become a multiple and non-absolute. Instead of this, to understand that, if the universe is one absolute essence, it must maintain its own absolute existence for all eternity, and no change can ever occur in it. And if matter appears to us in various and differing compound objects which change and vary every second, they should know that matter is not the essence of the universe itself and not the one absolute essence. If these wise men of Greece assumed that there is one essence in the universe, as Anaximander, one of the three, tells us, that this essence

is endless, limitless, eternal and undefinable—the one “eternal,” absolute existence which is seen at one second must be accordingly the very eternal, “absolute” existence which it has at all eternity, at every moment without ceasing, without beginning and without end; that such an essence is not subject to the conception of time; that there is not an instance of time in all eternity in which there is any change in it—they should have assumed then, that matter which changes and varies in time and place is not the one absolute essence which has no end and no limit and is “undefinable”. When these wise men of Greece saw that the changeable and variable matter before them is found in a universe, which was *not created* and *not perishable*, and that the force working in matter is active by compulsion,—and by this they saw the error of the idolators who believed that the divinities working in it, or in the universe, by their *free will*,—they should have known that the idolatrous errors had come to them, because they had formed their judgments by what their senses had perceived in the matter of the objects that were before them, before they knew what the one absolute essence is, which their primitive teachers had taught them. They believed in the words of their primitive teachers that there is one absolute essence in existence, which caused the existence of all this, and they did not

know what the essence itself is; but they saw that matter is changeable and variable, and that it could not be the existence of the absolute essence itself; they, therefore, formed the conclusion that matter is in the power of divinities or the creation of divinities, which worked at their own free will, and that those divinities were the existence of the absolute essence itself, that they were identical in degree and differed only by their subsequent activity. Thus, these wise men of Greece who have discovered the errors of the idolators who believed that matter was created and perishable and that force is working in it by its free will—should have known also *the causes* which had generated these errors in their minds, namely, the false inferences they had made from the perception of their senses before they knew what the one essence is. And these Greek thinkers should have cleared their minds of all the thoughts and inferences of the idolators, which had been conceived through the perception of the senses before a clear conception had been formed of what the one absolute essence is. When the Ionian philosophers made the assertion that there is one primary element, eternal, endless, limitless and undefinable in the universe, they should have *known themselves by intellectual wisdom and not by sensual perception, what they asserted*; that this assertion is the assertion of the *unity* of the universe and

not an assertion of the perception of the senses. By the perception of the senses man recognizes the *many* things that exist in the universe in *endless numbers, variety and differentiation*, and not the unity of the universe. The assertion of the *unity* of the universe is accordingly only of mental cogitation. They should have known, then, that the *universal unity*, as it is naught but in the mental cogitation, the mental cogitation itself is, therefore, the universal unity; that the one eternal essence is nothing but the *Mind itself* which changes not in all eternity. Since the Mind is above all sensual perception because it comprehends in one conception all the various and differing particularized objects and recognizes through it the *oneness* of the universe—the *oneness* of the universe is, therefore, *its quiddity and being*. The universal unity in which all particularized objects of existence are bound together in an eternal union, *the one internal being of the universe that is not created and not perishable*, is nothing but the Absolute Mind itself. The oneness of the universe is not in the force that acts and not in the matter that is actuated and that changes and alters every moment; but it is in the Wisdom of the Absolute Mind itself, which is the *very existence* of the universe entire, and which is the wisdom of the intellectual Laws of all the things that exist in actuality according to the Laws of the Mind. The one-

ness of the universe, as the *oneness* of the universe, which is not created and not perishable, is an absolute unity. It is not active and not actuated, it does not reveal itself in various particularizations and accidents. It is, therefore, nothing else than the Wisdom of the Mind itself which alters not and changes not in all eternity. Thus, this one eternal wisdom of the Absolute Mind is the wisdom of the human mind; and by this wisdom itself the man understands *within himself* its quiddity and being, that it is the unity of the universe.

Now, the Ionian philosophers who assumed the unity of the universe, which they designated as the primary principle, *if they know within themselves* what they assumed, they know also that their assumption is the wisdom of the Mind, and that the wisdom of the Mind is the unity of the universe. They might then know clearly the absolute emanation of the universe in general—in its potential existence and of the universe in particularization, in its existence in actuality. They might know that the universe in general is not created and not perishable, in that it is an eternal Absolute Emanation of the general existence of the Absolute Mind, and they might know that the particularized objects in it change and alter, in that the one Absolute Emanation is the one general activity in the essence of the universe, which issues forth

its potential existence into its particularized existence in actuality, according to the Laws of the Mind, as they are known one in the other in the general Mind. But these Ionian philosophers did not know themselves what they asserted; they believed, like all the idolators, in the words of their predecessors, which they had received by tradition, that there is one essence in the universe. They received, like the others, this wisdom *in faith*. But when they perceived the things that were before them in various and different particularizations in which there is no universal oneness, they began searching for the primary principle, for the unity of the universe in the things that their senses perceived, like the idolators who had invented for themselves as many divinities as they perceived with their senses forces at work. The difference, however, between the Ionian philosophers and the idolators was this: The idolators, when they perceived a natural phenomenon, they made a divinity of it, and when they perceived another natural phenomenon, they made of it another divinity. Thus they believed that the divinities were various in their workings but equal in degree, and that they were all the offspring of the general force which acted by its own free-will, of the one essence in which they believed by tradition. But the Ionian philosophers, who were great thinkers, scrutinized deeply every-

thing before they pronounced an opinion on it, and, studying carefully the compound objects before them, recognized the errors of the idolators, but they knew not where these errors had sprung from. And searching deeply into the phenomena they perceived with their senses, and judging by induction from the posterior to the anterior and from the particular to the general, contrived for themselves the system of Pantheism and Materialism, believing that matter itself is the principal Divinity, the primary principle of the universe in its totality and its particularization.

This error of the Ionian philosophers to recognize the mistakes of men without knowing their causes, and to study and scrutinize the things before them as they were, and to form assumptions by the perception of the senses before they knew their causes, was the same mistake which the sages and philosophers that followed them made and the same error in which the thinkers of the present time indulge. This error was originated in the notions of the ancient idolators, and is adhered to by the many and various religionists that followed them and that exist in the present time, for all religions were based upon the views of the ancient idolators. They vary and differ only in their external forms. And these errors veiled the mental skies, so that the Light of Wisdom, the pure

and exalted Mind, could not be seen. Let me proceed with my explanations :

The assumption of the Ionian philosophers that matter is the one primary principle of the universe, from which everything in the universe came and to which they all returned, was displeasing in the sight of Pythagoras, who lived about one hundred years after Thales. He understood that the philosophers of the Ionian school had made a mistake, in that they had yielded all the good of the universe to matter. But he knew not how their error had originated. Their errors, therefore, became his errors. Pythagoras was the first of thinkers who penetrated deeply into the science of Arithmetic, Mathematics and Geometry, and he perceived by his senses that the quantity of everything existing in actuality is subject to the laws of these sciences, and that all the phenomena in the universe were arranged in wise order. He, therefore, exalted mathematics and geometry, which he loved passionately, as the divinity which created the world; the Number is to him the one essence or the primary principle of the universe. The revelation and creation of everything in the universe, he taught, is the Number, and Nature in all her working, from the particularized being of man up to the general laws of the universe, is naught but mathematics and geometry. All the things that

exist in the universe are the images and the revelation of Numbers, and the universe in general is Number itself. The Number begins with one and runs up to ten; these are the primary numbers. All the endless and limitless numbers are contained in these. Thus says also the Cabbalist Moses Kordioro: "The number One stands by itself and is the beginning of every number; every number is in it in potency, and it is in every number in actuality. One, with reference to the Creator—blessed be He!—is in this wise applied; the blessed Creator is in all things in actuality, and everything is in Him in potency, and He is the beginning and the cause of everything." (Or Ne'erabh.) This pantheistic principle of the Cabbalah is the system of Pythagoras. The number One is in all numbers; it is the essence of every number, and still it stands by itself. Since it is the basis of all numbers—for they all begin with One and the One appears in them all—all numbers are in it in potency and it reveals itself in all numbers. All numbers come from one and are reduced to one, for One is the centre of All. *Ten* large and voluminous bodies (the planets) revolve around the sun; they are the primary numbers of the One; likewise are the *ten Sephiroth* of the Cabbalists. All the compound objects contained in these planets (of which the earth is one) are the numbers contained in the ten prima-

ries, and all the images of the quantities of these objects, as the image of the triangle or the square, are geometrical forms contained in the number one. With the quantities of the objects, the same is the case as with the qualities. The soul of man is the centre—it is the number one; justice is the number two; righteousness is number three, etc. As numbers are distinguishable in straights, such as two, four, six, etc., and in odds, as five, seven, etc., and all these are included in the one which is their centre, so the compound objects of the universe may be distinguishable and varying in quantity and in quality.

All the writers on the history of philosophy who rely merely on the historical records of the men they trust, without examining the words of the philosophers themselves, by the laws of reason, to know the origin of their views, were at a loss to fathom Pythagoras's teachings by these strange propositions. They knew not whether he regarded the Number as matter, whether Number itself was the quiddity of matter, or whether it was the essence which existed by itself and brought into existence the matter of all the objects in creation. They quote the words of Aristotle that he also did not know this clearly. The reason of this is that neither of them knew the causes of Pythagoras's errors, as they knew not the causes of the errors of all philosophers or of their own errors.

In truth, however, the cause of Pythagoras's error was the identical cause which originated the errors of the earlier Ionian philosophers and which originated the errors of all the succeeding philosophers up to this day. This principal cause of error is the same as led astray the primitive idolators.

We know already the cause of the errors of the Ionian philosophers who preceded Pythagoras, as it has been here demonstrated before. They believed in one essence existing in the universe, but did not know it by the wisdom of the mind; and they sought for it in the matter of the things they perceived with their senses, like the idolators. They were, however, men of great intellectual parts, and penetrated deeply by logical speculation into the *quality* of the existing things. And they made their assumption by a *posteriori* reasoning from the particular to the general, that the *quality of things* in general, when denuded of all particularization, is the one essence which creates and maintains all these things; that this is the one primary principle. That the *abstract quality* of things *is the creator* of things. Pythagoras, on the other hand, was a great mathematician, and also believed in one essence without knowing it by intellectual cogitation, and likewise searched for it in the matter of existing things. But by his mathematical skill he directed his inquiries into the *quantity* of

things. And as he also started from a *posteriori* assumptions, and reasoning from the particular about the general, he concluded that the quantity of things in general, denuded of particularization, is the essence which creates and sustains all this—the one primary principle. That the *abstract quantity* of things is the *creator* of things. I will explain this more clearly. All the particularized objects of the universe vary and differ in their quantities and qualities if we regard them singly ; but they are all of one quantity and quality which belongs to them all. Let us take men as an illustration. If we observe them singly, according to their peculiarities, we find them varying and differing one from the other in size, construction and abilities (quantity and quality) ; but if we regard them as a species, as a whole, we find them all alike in their general quantity and quality. Thus, Thales, as a great logician, pondered deeply on the *internal nature* of existing things searching for their intensive quality; and he found that the intensive quality of all particularizations of the universe is humidity, whose origin lies in water. He, therefore, concluded that this *general quality*, when regarded by itself, denuded of particularization, was the *one general principle* of the universe that created and maintained everything. The humidity of water is the general force in the general matter, which works by its own natural com-

pulsion. And as this force acts matter is actuated and manifests itself in various manifestations by different quantities, through which the one general quality appears in single and various qualifications. The philosopher Pythagoras, on the other hand, who was a great mathematician, calculated the numbers and quantities of every particularized object. He scrutinized their *external appearances* by the rules of Algebra and Geometry and studied their *external properties*. According to his conception he found Number to be the *one* general quantity of all particularized beings; and the origin of number he found in "Central Fire." Since the universe is *one perfect* bodily organism, and all the various and differing members or limbs of that organism,—all their various quantities by their appearances,—are constituted together according to the *perfect order* of the mathematical harmony, Number must be the principle of the universe and in it must be contained all the beings with their quantities, forms and construction;—it is the *one general quantity*, and in it they all exist. And since its origin is in the Central Fire, according to his views, so that the number is in constant action for all eternity, and through this the Central Fire manifests itself in the existing things in various qualities, they, therefore, appear to us also in various quantities, in their singularities, one from the other

and one after the other in the order of creation according to the laws of Arithmetic and Mathematics. We thus know clearly that the views of Thales and the Ionian school of philosophy as well as the views of Pythagoras are based on the system of Pantheism and Materialism and were generated by the one and the same error, viz.: The belief in one essence and lack of knowledge of what that essence is. And they sought that essence in the things they perceived; the one in the general quality and the other in the general quantity of those things. They reasoned on a *posteriori* assumptions, judging from the particular about the general. And thus together they established idolatry in the world.

When the Eleatic philosophers came and recognized the errors of the Ionians who had *deified* the general quality of matter and the errors of Pythagoras who had *deified* the general quantity of matter, but knew not the cause of these errors, they put up a new theory on the same errors. They also believed in one universal essence which generated all that exists, and they also did not know what it is, and could not explain the order of creation from the general into the particularized existence, either through the general quality or through the general quantity. Diving deeply in their research into existence in general as devoid of all material quantity and quality and reason-

ing on a *posteriori* premises from the particular about the general, formed the conclusion that Existence, *i. e.*, *Being itself*, is the fundamental principle of the universe. They found that the general quantity denuded of particularization exists, and general quality denuded of particularization exists also ;—existence contains them both. Hence they concluded that Existence itself is the general absolute being of the universe entire ; that this being is neither in the quality nor in the quantity of existing things, but it is the abstract general and absolute being itself, which only the mind can conceive. The first philosopher of this school was Xenophanes, who began promulgating his teachings in the last years of Pythagoras. He established his school in Elea, and, therefore, his disciples and followers were called Eleatics. He was the first to reproach those who attributed to the divinity material forms, and sharply criticised Homer and Hesiod, who in their poems had depicted the divinities in the forms of human beings and had attributed to them human foibles. He advanced the proposition that the general being of the universe entire is one general absolute existence by itself ; that it could not be conceived in the images of quantity or quality ; that it is neither in the quantity nor in the quality of the things that exist. "The All is but one ; Existence is one, and that is Deity." His disciple Par-

menides explains his teachings more clearly. "Being and Thinking is one thing, and this is one Absolute Existence in the universe, when denuded of universal phenomena from the general and from the particularization. The being and thinking, which appears in the universe in general and in man in particular, is naught. All the thoughts and the lofty and sublime conceptions of man are transient, for they are in the material body, which alters and changes; for all things in the universe are created and lost, limited in time and in space, movable and divisible, varying and differing. They thus, neither in quality nor quantity, have any relation with the abstract being and thinking which is not created or lost, which moves not and is not divisible nor limited in time and in space, and which is the one absolute Divinity."

Now, considering deeply their views, we see plainly that all their views are based upon the same errors; for if these Eleatic philosophers knew themselves what they have asserted—if they understood wisely that this assertion, "that being and intellect is one and the same thing," is the assertion of the human mind itself; and that since the wisdom of the human mind itself is the very wisdom which asserts this assertion, "that being and intellect is one and the same thing," hence this being and intellect, which is the

substance that brought forth all that exists, *could not be outside of man*; that it could not be absolutely abstracted from the human mind; that the Absolute Being could not be beyond his conception or intelligence, but it must be *inside* of his own conception; that the human intellect, which makes this assertion, must be the Existence itself and the Intellectuality itself for the whole universe; they would know by this that the Deity—in which they believed that it is the general existence of the universe entire—is not absolutely separated from all the existing things, that the human intellect should not be able to conceive it. But He Himself in His very Being and Intellectuality is in the universe itself and in all the things that exist in it; that *He is the very life of the universe entire*, not because he is the general or particularized quality or quantity, but because he is the general intellectual image of the whole universe in which are known the images of all compound objects that can be in existence according to the laws of the Mind, to be cognizable in actuality as they are conceived in the Mind. They would know then the quiddity of this one essence, and they would know to reason *a priori* from the general about the particular, to understand the Absolute Emanation of the universe entire from its generality into its particularized existence, and they would then establish an abiding system for all

eternity. But they did not know themselves what they asserted; they only believed, like all the idolators and like the philosophers of the Ionian school, in one sublime and mysterious essence, and that is Divinity. And they sought for it in the matter of the existing things of the universe by a *posteriori* reasoning and by induction from the particular to the general, divesting the general conceptions of all particularized conceptions. They noticed the mistake of the Ionians, who divested general quality of all particular qualifications, and thus made of general quality Divinity. They noticed also the mistake Pythagoras has made, who denuded general quantity of all particularization, and thus made Divinity of general quantity. And they went a step further. They made of matter an absolute abstraction, divesting it altogether of quality and quantity, even of human intelligence. Thus general existence was left them only in thought, perfectly isolated from the universe in general or in particularization. This abstract thought was to them the general existence, and divinity, which brought forth everything in existence—a divinity which we know not, which has no relation or connection with us, from which we have nothing to expect if we serve it. This is sheer idolatry—to believe in a divinity like this, which does not exist in the universe. This, however, is the

source of many philosophical systems of the Greek thinkers of latter times and of the systems of the Jewish philosopher Maimonides, the author of the "Guide for the Erring."

When all the compound objects of the wide, endless universe arose in protest against the philosopher who had made nihility of them, and in a loud voice they shouted at him, "What are we? Don't we also exist in the universe?" this philosopher conferred a mercy on them and invented two elements in the universe which are of permanent and living existence: fire and earth, or heat and cold. All that exists in the universe is a mixture of these two elements. Fire gives light and life to all that exists, for fire is the nearest to the general absolute existence and all the beings in which fire is found in the largest proportions are in the highest degree of life, light and intelligence. Earth causes destruction, annihilation and darkness; for earth is the furthest removed from the general absolute existence; all beings in which the earth is in largest proportions are in the lowest degree of life, light and intelligence. From those two elements all the things existing in the universe come, from the mineral up to man, from the material body up to the human intelligence; in these two elements they change and alter in all eternity. This is the being and existence in the universe.

When the third Eleatic philosopher, Zeno, came and noticed the contradiction which there was in the teachings of his master, Parmenides, who at first had put up the proposition that abstract thought is the only existence in the universe and all the existing things perceived by man were vanity and naught, and had afterward asserted that there are two abiding live elements in the universe, fire and earth,—he endeavored to overcome this contradiction by dialectic methods. He opined that the first proposition of his master was true, that there is only one absolute existence in the universe, but all the beings which are perceived in the universe, they and their motion and their forces appear only to man's particularized perception; in truth, however, there is no motion or active force in the universe. With this philosopher the Eleatic school was completed.

These two schools, the Ionian and the Eleatic, were a stumbling-block and an impediment to all philosophers up to the present time. The Ionian school taught absolute materialism, and the Eleatic school taught absolute idealism; both were based upon one and the same pantheism. The Ionian reduced divinity to matter; the Eleatics raised matter to divinity. When the philosopher Heraclit came and could not find himself aright with either of these two systems, he combined them both and advanced

the following teaching : "The aggregate of all existing things is in an eternal flux. In the perpetual flux is perpetual change. All existing things come up and go down in this eternal flux. But we may and may not come up in this fluctuation, for we cannot come up twice because the fluctuation disperses and conjoins again. It fluctuates hither and thither. Nothing remains forever equal to itself; the flux absorbs and expunges everything in it in constant motion. It divides itself and gathers itself up in another composition. Everything comes from the All; from life comes death and from death life. The All is eternal. Nature is everywhere the same in changing and variation, in becoming and in annihilation. The struggle among the living in the existing things is the originator of all that exists, for all that exists does exist only by the struggle of opposites in the eternal flux. Unity itself divides itself in two which go side by side like the bow and the arrow in the hand of the archer. The perfect and the imperfect, the compound and the simple, the orderly and disorderly are tied together in one bond. Thus from All comes the One and from One comes the All." These lofty and sublime teachings Heraclit incorporated in the doctrines of the two schools in order to unite the one sublime essence, the one general *Being* with the *becoming* of the particularizations that

we perceive. But he accomplished nothing, for he also knew not the cause of the error of the philosophers that preceded him. Thus he also could not explain the quiddity of the general existence, not the quiddity of the particularized beings, not the bond which united the two. When he began explaining to his disciples the development of creation according to his system, he was compelled to assume the existence of one element in the universe, viz., fire; all that exists comes from fire and to fire it returns. When fire is in its power all beings are dissolved in particles, and when its power ceases the particles return to the eternal flux and are formed into new compound objects. The fire thus blazes up and becomes faint in succession in all eternity. In this wise the philosophical teachings developed from generation to generation. Then Empedocles came and put up the theory that there were four elements and two forces that opposed each other, the force of attraction and the force of repulsion. In this theory he combined all the theories of the philosophers that preceded him. The two opposite forces working in the four elements are the creators and the created in the universe. After him came up the teachings of Leucippus and Democritus, the atomists, who advanced the theory that there were atoms in countless numbers in the universe, equal in quality but varying in quantity,—against

the theory of Empedocles who believed only in four elements that varied in quality. Anaxagoras, who also followed the teachings of the preceding philosophers, put up the following propositions: "Nothing is created and nothing is lost, but from the things that exist in the universe new things come into existence by commingling and unmixing. All the things existing were and ever will be co-existent; these are infinitesimally small particles of countless numbers, the atoms which are equal in quantity and in quality (the philosophers that followed him called them Homœomeriæ, by different opinions, many of them regard him as an atomist). Active reason (*vous*) mixes them in various and different compositions and ranges them in the order of creation as various and different objects." This philosopher, too, combined the teachings of his predecessors, and established upon their errors a new theory, the theory of *dualism*; the existence of reason apart from that of matter. He saw by the theory of the Ionians that matter is of absolute existence, the *divinity in matter*; and by the theory of the Eleatics that Mind is of absolute existence, *matter in deity, in reason*. But he knew not the origin of these two theories, or how to explain the order of creation by them. He, therefore, advanced the proposition that Mind is an absolute existence by itself and matter is also an absolute existence by itself;

and that mind is the active force in the matter outside of it, and ranges and orders the latter by its own free will and power. As he knew not the origin of the errors of his predecessors, he was also unable to tell us what the quiddity of the eternal mind is, or what the quiddity of eternal matter is, or what the relations are between matter and Mind, and how the latter acts upon the former. Then came Socrates and noticed the errors of all his predecessors, who like blind men in the dark, were feeling for the causes of all the existing things in the universe. But also he did not know the cause of their errors. He, therefore, turned aside from the speculative philosophy which searches for the causes of things, and established a practical philosophy of ethics and morals. By this he did much good to mankind with his teachings as well as with his actions, and his fame spread throughout the world.

After Socrates arose the philosopher Plato, who renewed the old speculative philosophy. He dived very deeply in search after the causes of things existing in the universe, like the philosophers that preceded him. But, like them he did not succeed by his many inquiries in explaining the order of creation according to the laws of the mind; save that he anticipated by a dim conception of the Absolute Emanation, which he called the soul of the universe.

He took hold of the theory of the Eleatics on absolute existence, that the Mind is the general existence of the universe and its own existence is absolute ; and he embraced the theory of Heraclitus about the absolute becoming, that matter is also of absolute existence. These two theories he combined into one through the theory of Socrates that mercy and love are of absolute existence in the universe. Matter he represented as an absolute being in what his disciples termed *ἕλη*; this matter is without form, without image, without quality. Eternal Mind, by a pure and exalted thought, in mercy and love infused in this matter the breath of life,—this is the soul of the universe. This universal soul orders and works in the eternal matter according to the will of the absolute Mind, in mercy, love and good order, to form of this matter various and different compound objects, and also the individual souls of man, which survive man and after his death join the universal. But if Plato knew the cause of the errors of the philosophers who preceded him, and if he had dived deeply to inquire what Mind itself is, that Mind itself is the general abstract image of the universe in general in which are cognizable the images of all the particularizations one in the other,—he would know then that the universal soul which he recognized by his profound inquiries is the absolute Mind, since in it the images of all compound

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objects pass on from their intellectual existence into the existence of potentiality, into the universal soul. He would then, judging from *a priori* premises and from the general about the particular, understand the development of actual existence from the potential existence, and he would not create for himself an eternal matter which does not exist at all. But Plato built his theory upon the errors of his predecessors and he founded a system of many eternal things against all reason and truth, for there is only one eternal Being.

When his disciple, Aristotle, came and noticed his errors without knowing the cause of those errors, he spoke in the following terms of Plato's theories: "The ideas do not help us in the least to recognize the existence of the things that are in the ideas, for the thoughts are not immanent in the particulars but exist apart from them." For, according to the theory of Plato the very essence of thought consists in the general conception divested of its particulars,—the conceptions which have formed the particulars into a general image of thought. Aristotle with these words exposed the error of Plato, who, besides that he did not explain what thought is and how it affected the particulars, did not explain even what the existence of the particulars is. When he divested the general concept of these particulars, he left nothing by which

a self-standing existence might vindicate all the thought;—*i.e.*, by which the general concept might exist without its particulars. But Aristotle knew not the cause of Plato's error and he also constructed a new theory which was also based on the errors of his predecessors.

Aristotle had before him the theory of the Ionians, that there is one essence in the universe from which every existing thing came and to which it returned; then, the theory of the Eleatics that the absolute Mind is the absolute existence; then, again, the theory of Heraclitus that there is an absolute becoming, that the aggregate of all that exists is an absolute flux, that All is eternal, and from all the eternal all is becoming; finally, the theories of all the philosophers that preceded him down to his master, Plato. He understood their errors, and found that the order of creation could not be explained through them. But, without finding out the cause of their errors, he searched very deeply, by sharp speculations, and found out two kinds of existence—the existence of potentiality and the existence of actuality. Before he understood himself the idea which he conceived; before he pondered this idea by pure reason on *a priori* premises, and judging from the general about the particular; before he searched into the quiddity of the existence of potentiality as a self-standing

conception and into the quiddity of actuality as a conception by itself—he invented for himself two fundamental essences which originated four principles, and by these he believed to get an explanation of the order of creation. In truth, however, this led him into the greatest error, and became the cause of many great errors among men. The two essences of Aristotle were matter in potentiality, which he called *ἕλη* and Form in actuality. This matter, in its general abstract conception as devoid of form, is an eternal essence, existing in itself without any form or image, without change or alteration. It is not defined for any object and possesses no activity and motion in itself, but it has a susceptibility and capacity to receive action, which is Form, and receiving action to be in motion. This is the foundation of all things that exist in the universe, whose variation and differentiation occur in it only through the receiving of activity, while in itself, in the abstract general conception, it is wholly devoid of form : this is the absolute existence in potency. Form, too, in its general conception as devoid of matter, is an eternal being in itself ; it is the general activity in the universe which affects matter from the outside and brings it into motion. It is the universal Soul in general and individual soul of every being in particular. Form is the general activity influencing matter and bringing

energy (entelechy) into it, so that it comes in motion and issues forth from its state of *self-being* into a state of *being by itself*, from potentiality into actuality. Matter is thus influenced by form to assume certain formations for certain ends, according to the will of Form in general, in grace and love, to become certain particularizations in actuality, in particular forms which are particularized souls coming one from the other and one after the other in the order of creation in all eternity. And this is Divinity in Actuality.

Aristotle, also indulging in the very same errors as the philosophers that preceded him and as the primitive idolators, wished to explain the order of creation from a *posteriori* premises and judging from the particular about the general. He saw that every being in the universe existed on four principles—*matter, form, action, and end or purpose*. Searching deeply into these four principles, Aristotle found that they are all represented in every existing thing and fall back upon two primary essences—*matter and form*. When Form joins Matter, it produces action for a certain *end or purpose*. The purpose is attained through the action of form in matter. Thus all the principles of existence are derived from the primary essences. In this wise he proceeds, explaining the general existence from the particular existence, always on a *posteriori* premises and judging by

induction from the particular to the general. He saw that every particularized being is an individual thing by its particular form. Every particularized thing whose form is the more perfect is the more individualized among other particularized beings, and the less perfect its form, the less individualized it is. All beings in the universe are, accordingly, graded in the scale of creation. Man, having the most perfect form of all other particularized beings, stands the highest in the scale of creation, for the human body is a human body because it has received the most perfect action of the most perfect form; the matter of this human body is consequently in the highest degree of perfection. The animal, whose form is less perfect, is composed of a lower degree, the vegetable is still lower, and the mineral is the lowest of all, for the matter of the mineral has received the least action of form. Matter of which the mineral is composed is, in its general conception, devoid of all form. In that state it is the Hyle in its potential existence, without form and shape. And so in the reverse. When form appears as mineral, it is in the lowest state of creation, for then Hyle was affected by form in the slightest degree; the form of the vegetable is higher, because the effect of form upon Hyle appears in it more than the mineral; the form of the animal is still higher, and the form of man is the highest in

the scale of creation. But the form of the heavenly spheres, which move the whole universe by their activity, is, according to Aristotle, the highest in existence, and the matter of which the spheres are composed is purer and higher than the Hyle of sublunar creation; it is quite a different kind of matter, effected by the highest grade of activity of form; Aristotle calls it the fifth substance. The spheres are intellectual beings of the highest production of form in its highest conception. The form, then, of which the spheres are made, in its general conception, as devoid of all matter, pure and unmixed, the Form of forms, is Deity, which creates all form in formless matter, the Cause of all causes, the Mind of all intellectual beings,—God in His absolute existence in actuality.

Such is the theory of Aristotle in general and in its particulars. The basis of this theory is the error of the idolators to believe that there is one essence in the universe produces all that exists, without knowing the very quiddity of the essence, and to reason on *a posteriori* premises and from the particular about the general. This Aristotelian theory, notwithstanding the deep thought invested in it, is false from the beginning to the end; at the exception of the two existences which he has discovered, the potential and the actual existence—but even this he conceived but very dimly.

If he had conceived the potential existence, his own discovery, clearly; if he knew himself what he asserted; if by deep cogitation he had found out that the existence of potentiality precedes the existence of actuality; that the existence of potentiality produced the existence of actuality, for everything that exists in actuality came to its existence only through a cause which preceded it and which contained it in potency before it issued forth into actuality; the existence of actuality of everything of actual existence is first a potential existence in the cause which precedes the thing in actual existence; thus the actual existence of the universe in actuality lies in the potential existence of the universe which preceded it, in the general previous cause of the universe entire; for the potential existence of the universe contained within itself the universal existence of actuality before the universe came into actual existence,—Aristotle would then know that the existence of actuality does not act upon the existence of potentiality to bring forth what is contained in potentiality into actual existence, for the existence of actuality is later in time, coming into its actuality only after having been contained in the possibility of the potentiality, and it cannot be an existence by itself not to be independent of another existence outside of itself; but through a certain other activity in existence

which is in the existence of potentiality that precedes it, and that causes it to become afterwards an existence of actuality. Aristotle would know, moreover, that the existence of potentiality in the Hyle, which he has discovered himself, contains the forms of all compound objects that were, that are and that ever shall be in the endless universe in actual existence, in one general form in itself—*i. e.*, in its potentiality—and it is itself the producer of the forms of all compound objects, one from the other and one after another, in the order of creation, from its potential existence into the existence of actuality, by a general precedent activity which is neither the potential nor the actual existence. Aristotle would then know that the Hyle itself is the general form of the universe entire which brings forth the forms of all compound objects from the general form it contains in potency into the particular forms of each of them in actuality, and thus it is in itself the form of all forms, and not Hyle—not a formless substance.

So, also, if Aristotle had understood himself the existence of actuality, he would also seek to understand clearly what actuality is as a conception for itself in actual existence. If he had thought deeply, he would know that the existence of actuality in the universe is not the general existence of the universe entire, but every existence of the things of actuality

is a particularized existence of each of the particularized things as it is found in the universal activity, coming from the general potential existence which preceded it in the universe in general. For if actuality, as a separate conception by itself, were the general existence of the universe in general; if the existence of the things we perceive in the universe in actuality were the existence of the universe entire in generality,—the existence, then, would be a general absolute existence in itself, without any change in all eternity; so that all the particularized things we perceive in actuality would be abiding and existing forever in this, their general and absolute existence, for every general existence is absolute and does not change. But we see and we know that every existence of actuality, as the actual existence of a particular thing that is in actuality, changes every second. At every second it appears in actuality in a certain form or image, and every other second it actually changes and becomes a different image of actuality. The human body before us, we see it as it is *appeared* in actuality every second, and every second it *changes* in actuality before our eyes. The atoms of its composition change every second in water, air and other things; they are all expelled from the body and, outside of it, turn into other compounds and assume different images. And every

second the body absorbs other atoms in the place of those it expels; atoms that were previously in other compound objects and formed different images combine again to form the human body. The potential existence of the human body keeps it up in its time and place in the absolute general existence of the universe in potency, and the actual existence in it appears and changes every second. If Aristotle had pondered this, he might know that the existence of actuality is nothing but the manifestation and modification of the potential existence which is the general absolute existence of the universe entire, and in which all the compound objects come and go, are manifested and changed, appear and alter, arising and vanishing like shadows in all eternity; and the potential existence itself is naught but one general form of the universe entire in its generality and in its particularization. Thus, Aristotle might know that his Hyle does not receive the form from outside, and it is by itself a formless matter; but the form which we perceive in actuality in the matter of all created compound beings in the universe is a form which is contained in it and comes from it as *it manifests itself* to us in matter. And this Hyle itself is not matter, but the general form; while the matter of all compound objects is nothing but the modification of that general form which is the essence of the universe

itself. Aristotle might know, then, that the existence of actuality is not the general activity that works upon the existence of potentiality in the essence of the universe, and that it is not the Deity which produces all that exists. He would then not teach mankind his theory that the form of every particular thing in actuality is the general self-standing form of the universe entire, that this form it is which works upon matter, which is a thing for itself, and formless, and that *it vests* matter with the various and different forms, according to its own *free-will*, for a *certain purpose*. He would then know himself and teach mankind that the form of every particularized being of *actuality* is the manifestation of the general form which is in the essence of the universe in *potentiality*. And the essence itself is not matter and not force, but one general image which contains in itself the images of all compound beings as they exist in actuality, and which has become such an image in its existence in potentiality through the sublime intellectual image as it exists in the Mind, and which issues forth into actuality to become particularized images, to reveal itself in various and different particulars and modifications through one general activity which is beyond it, through the Absolute Emanation of the Absolute Mind that is neither active nor actuated, and does not reveal itself in particulars or in modifications.

But Aristotle knew not and understood not all this, for in such a way he demonstrated the existence of God by the evidences of actuality, of the things as they are in actuality. The existence of actuality, according to his cosmological demonstration, must be previous to the existence of potentiality, not only according to its own conception (for the conception of existence of potentiality, of the possibility of existing, is only relative to the existence of actuality), but also according to time, for the possibility of existing can be thought of, only after it has become manifested in actuality. And by this he establishes the hypothesis that "there is a worker in the universe who is *activity itself* and that he is the author of all that exists." All this is utterly false. The existence of actuality must be later than and not precedent to the existence of potentiality. If a man invents a machine which has not existed in the world before, he cannot bring it into actual existence before he knows in his mind that it can exist, and that he can bring it from its existence in potentiality into actual existence. There was a time when there were no human beings on the earth in actuality; but they were there in potentiality, for the human race was not imported hither from another planet. Man came on earth in actuality from his existence in potentiality in the existence of the earth, as in the actual existence of

the earth was contained the potential existence of man; and through a certain cause the man was brought from its potential existence, in earth, into its actual existence, as man in actuality. The potential existence, which is the possibility of existing, preceded in time the existence of actuality.

The error of Aristotle became the heritage of the philosophers that followed him, notwithstanding the many errors they discovered in his system. Descartes makes the following assertion: "The idea which a man may conceive of a winged horse is not in itself a falsehood as long as the man does not think at the same time that a winged horse can be found in existence." Thus this philosopher thinks that, if a man believes that a winged horse can exist, his idea is a falsehood. This, however, is utterly false; for Aristotle's error was impressed upon his mind that actual existence was previous to the potentiality. The truth is that every conception of the mind, which has not a refutation in the mind, must have an actual existence, when the cause comes to produce it in actuality according to the laws of Intellectuality as it is conceived in the mind. The winged horse has no refutation in the mind, because the mind asserts that a horse with four legs can be in existence which should have also wings when there is a cause for it. If we have not such a creature before us in actuality it may be

for the reason that the cause for its actual existence is not come yet, or perhaps there was such a cause many thousand years before us, and a winged horse did actually exist in the world, but another cause came afterward and destroyed that species, as many other species of animals were extinguished upon the earth; perhaps, moreover, there is still such a creature in existence on the planet Mars or on some other planet. Let us imagine our earth as it was in its primitive state when there was not a human being upon it yet, and let us think of a human body behind it, upon another planet, or even who came upon it, as it was in that state; and let him assert then, that the image of the human body in his mind—he thinks of it in its potential state, in the possibility of the earth—must be in actuality when the cause will come to produce it. Would it be a falsehood then, this assertion that the human body of his mind would exist in actuality when the cause would come to bring it into actual existence?—Whoever has brains in his head must know that the existence itself of the human body is not because the body is in actuality, but because it was conceived in the Mind before it came into actual existence.

Upon the same error Immanuel Kant based his whole theory of "Critique of Pure Reason." The first and principal foundation of his theory was the teach-

ing of the philosopher Zeno of Cyprus, the founder of the system of Stoicism after the time of Aristotle, the philosophers of that school followed Aristotle's errors because they knew not the cause of those errors. He made the assertion that "all the knowledge of man comes from the effects which external objects produce upon the human senses; the recognition of external objects (objective experience) combine within him and form the human mind. The cognition of man comes not from his inward wisdom (subjective) but from outside things (objective) and therefore such cognition is true. But since by the force of imagination in the mind false notions mingle with true recognitions, man must search for the criterion of truth to be distinguished between the false notions and the true recognitions. The criterions of truth are forcible evidences appealing to the force of judgment about the ideas which swim up in the human soul." This is the foundation which Kant has laid to his teachings. He collected and gathered up many more such erroneous thoughts from the philosophers that had come after Zeno and established his theory upon them. He made the following assertion: "The Ego that thinks (the thinking soul of man) is only a naked form of consciousness by which man recognizes and conceives the things that are external in time and in place. The wisdom of the human mind is not an existence

by itself. It does not give the human mind the power to know out of itself things that are beyond the compulsory experience." And adducing many strange and sophistical reasons to show how antinomies of logical conclusions may spring up by reasoning without compulsory experience, and how errors lie at the door of paralogism or conclusions drawn from false premises, he gives us the following warning: "Man must not conclude that a thing can be in actual existence, or in realization, because it is possible to conceive of it in the mind." This is precisely Aristotle's error which has impressed itself upon the minds of all the ancient and modern philosophers who knew not and understood not the quiddity of the mind itself or the methods of judgments. According to Kant, the idea of a bird with three or five wings is a mental possibility, for it has no refutation in the mind; but such a bird in actuality is an impossibility, for it is contrary to the laws of motion. Thus no conclusions should be drawn from mental possibilities about the possibilities of actuality. But this is utterly false. The idea of a bird with three or five wings, which is an impossibility in actuality because the laws of motion are opposed to it, is also impossible according to the mind. For the mind is not a lot of abstract conceptions gathered in the brain and mixed up with each other, as it was the case by the doubter Kant,

but the quiddity of the mind consists of the intellectual laws of all the things which exist in actuality that they should exist according to the laws of the mind. The mind itself asserts that a bird with three or five wings cannot be in existence as a bird, because it is contrary to the laws of motion. There may be malformations in nature, in actuality as well as in the mind, only on account of certain other causes which have worked on the cause of that thing. So also according to Kant there can be two opposite motions in the mental conception, while the existence of such two motions in actuality is impossible. But this, too, is false, for the mind itself asserts that the actual existence of two opposite motions is positively impossible,—the mental conception of such two motions is also an impossibility. The mind itself is but the image of all compound objects that can be in existence according to the laws of the mind and through the laws of the mind, and not through false imaginations. Thus every thing that exists in actuality must exist in the Mind by the conception of the mental Laws, before it comes in actuality.

Let me return to the great philosopher, Descartes, regarding the quiddity of matter. He says :

“Proposition 5. There are not atoms.”

“Demonstration: Atoms, according to their nature, are indivisible particles of matter (according to definition 3). But since

matter subsists in extension (according to definition 2 of this volume) which according to its nature is divisible, no matter how small its particles may be (according to Axiom 9), every particle of matter, be it ever so small, must, according to its nature, be divisible;—*i. e.*, there are no atoms, or naturally indivisible particles of matter."

This proposition and demonstration are utterly false. The demonstration that matter subsists in extension which is divisible is based on Axiom 7 which asserts that the quiddity of matter is extension, and on Axiom 9. The latter, however, is utterly false, and consequently the deductions from it are baseless and untenable.

Here is his 9th Axiom :

" Every extension can be divided in parts, even if it be only by the mental process. No one, if he knows only the primary principles of mathematics, can doubt this; for the space between the tangents and any given circle can always be divided in countless other and larger circles. The same is the case with the asymptotes and the hyperbola."

Now, this Axiom is utterly false. For even if space can be endlessly divided, mentally or mathematically, matter must be, according to the geometrical principles, indivisible in actuality; because if matter or extension were not indivisible in actuality, there would not be a geometrical point in existence in the mind. The first definition of the elementary or Euclidian Geometry is that : A point is that which

has no parts, or which has no magnitude. Thus, the geometrical point is mentally indivisible. Now, if extension is so endlessly divisible in actuality, that there is not a physical point in actual existence which is indivisible by the mind, that the mind should recognize it as indivisible, then we have no right to have a conception in our mind of a geometrical point. For even if the mind should recognize that there are atoms, indivisible parts of matter in actual existence in the universe, the mind must at the same time recognize that there are no mental atoms in the mind. If the mind should conceive of a physical point that it is indivisible in actuality, this point could still be mentally divided; for every physical point, of whatever nature it be, even such a geometrical point which has no parts, is always mentally divisible in two parts, and those parts, again, can be divided in parts, and so forth without end; that point which has no parts—as long as it is a mentally complete thing, *a whole for itself*—we can imagine in our mind a half of that whole, a quarter, a fifth part, and so on. Thus, if a point which is indivisible in actuality is still divisible by the mental process, how is it possible to conceive in the mind that a point which is divisible in actuality should be mentally indivisible? If there is no physical point that is indivisible, how can there be a mathematical point which is mentally

indivisible? The truth is, that the very first step of Geometry teaches us that the beginning of extension, or of matter, is indivisible; that the unlimited mind conceives the limitation of the objective matter, although the mind itself is without all limitation. The mind itself can imagine a line that is endless, but it judges at the same time that such a line cannot be in actual existence. So, also, the mind can think of a line that can be endlessly divided, although it teaches us at the same time that there is no such divisible small particles in actual existence in which the line can be endlessly divided. The cogitation of the mind can think of countless large circles within the area between the tangent and the periphery of a circle, although the mind itself teaches us as a necessity, that the actual area, as limited matter, cannot be actually divided without end. Thus the Mind, as a Whole, the Absolute Intellectuality—as it is the mathematical bond to the whole universal existence, in which each and every one of the mathematical inferences is inferred from the previous and is an inference to the following—is the Intellectual Law of all the things that can be in actuality, as they *should be* in actuality by their *actual limitation*. The mathematics of the facts, not of the causes, must be brought to the intellectual knowledge of the mind, which is the mathematical bond itself,

and mind itself must be the ruler and the judge of it.

The error of Descartes, and of all the philosophers that preceded him and came after him, consists in that they knew not the real difference between the cogitation of the mind as a *general* intellectuality—a mathematical *bond* and the perception of the *individual* things through the senses—as *particularized images* of the objective appearances into the human brain. Thus says Descartes himself: "Def. 1.—Speaking of cogitation, I mean all the thoughts that are in us, by which we know that we exist; these are the will, the cogitation, the individual imaginations and all the promptings of the senses and the mind" (Part I). So, also, says Immanuel Kant: "The lot of the human mind is like the lot of his sensual perceptions; it constantly lies under the pressure of many questions to which there is no answer." According to their notions, the pure reason of the mind, which judges about the thoughts in general, is nothing more in itself than as an offspring of those thoughts about which it judges. When a thought enters the human brain by the actuation of his individual sensual perceptions, it generates within it the pure reason to judge about its own progenitor; about the individual images which are put by the sensual thoughts into the brain and about their being. According to this,

the lot of the pure reason of the mind is, indeed, like the lot of the sensual thoughts. The origin of this mistake lies in the fact that these thinkers have noticed that there were no mental conceptions before sensual perceptions were present. From this they formed the conclusion that the cogitation of the mind is only an offspring of sensual perceptions; that mental cogitation and judgments of the mind are not things by themselves, but formations of sensual perceptions. And, therefore, according to their views, when the ideas of things, of their objective appearance, associate in the brain, they are nothing else but just as they are—single ideas of single perceptions; and when, after then, they incite the mind to judge about these ideas, by logic, mathematics or geometry, they compel themselves to be returned again to those ideas as they were before—to regulate their judgments only according to the outward appearance of the ideas themselves. That there should not be anything more in the mind than that which is in the images, and nothing in the images but which is to the mind. The images change into mind, and mind, again, into images. Instead of this, so that they should let their ideas in the brain go ahead from their potential state to their previous Subjective state, as I have explained in the previous chapter, they compel themselves to return their ideas to their objective state, to retain

them as single ideas of single things without the pure general relation.

When Descartes was asked, How is it possible to conceive of two endless objects that the one should be larger than the other? If we have before us two bodies, the one being twice as large as the other, and we say that both are endlessly divisible, we assume that one endless body is larger than the other endless body, and such an assumption is a contradiction in itself even according to his own teaching? He answered, "We cannot throw away things of our cognition and understanding for the sake of things which are beyond our knowledge. We cannot have a clear knowledge of endlessness itself." To him, then, mind itself is only an offspring of the individual imagination of man, and he would not trust the judgment of the mind where there was no sensual perception to support it.

But neither he nor those who argued with him understood that extension itself is not a mental image in the pure abstraction of the mind. The pure abstraction of the mind, which is the abstracted idea of the universe entire, standing by itself as a whole, cannot be conceived that it extends itself in space and in time. Neither Intellectuality nor the Universal Essence itself, as a Spiritual Substance, possesses the property of extension, in virtue of which they should

occupy a certain space in any instant of time. And therefore, forming in our mind the general conception of the universe entire, by *a priori* reasoning, there is no space and no time included in that conception, in our mind. The conception of extension, of time and space, came to our mind only by *a posteriori* reasoning, through the sensual perceptions of the objective world, only after it is formed in actuality; positively not as Immanuel Kant has dreamed. The objective world, which are the single parts it contains, appearing to us in their singularities, through the changeable matter and force, brings about the perceptions of extension, of time and space, as the result of its individualization, to our mind. So that our mind judges that the universe as a whole, which has no time and no space, and no extension of any kind—as it is never changing, modifies the countless number of single objects, coming one from the other and changing one into the other, through which we perceive the designation of time and space.

Thus, we have to understand the essential distinction between the conception of the mind itself and the sensual perceptions which are brought through the muscular senses, to the mind, and to be careful not to confound the one with the other. By our sensual perception we see only the endness of things, as they are limited by their three dimensions in space and

time, and we have no knowledge of the endlessness itself, as Descartes said; but by the judgment of pure reason in our mind we have a clear knowledge of the endlessness and not of the endnesses. Because as our pure intellect tells us that the universe exists by absolute natural laws we have the clear knowledge of the endlessness, that the universe has no beginning and no end, and we have no reason and no right any more to say, that the existence of the universe can ever be limited—that the absolute natural laws should not be absolute. The pure intellect may have the reason to have the conception of the limitation of things—*how they may be limited*—only by *arising* them to the endlessness itself. Since the number is endless it must be an endless number of things; an endless number of things, simply means, that every thing is a thing for itself, limited by its three dimensions in the *infinite space*; and since the endless number of things exist by certain natural laws, that the natural laws are also of an endless number—one endlessness is contained in the other, each of the endless number of things, therefore, must *pass over*, by its limitation, throughout the whole endless number of natural laws, coming one from the other and changing one into the other in the *infinite time*; and finally, since the endlessness itself brings about the limitation of things and it is conceived by it, the *limitation must*

consequently be limited, it must be a beginning and an end to the limitation; atoms, therefore, indivisible small particles of matter, exist.

The mistake of Descartes has involved Benedictus de Spinoza in a mistake still greater. Descartes made the mistake of assuming that "extension" is an abstraction of mind itself, and this caused him to think that matter is a self-existing substance, which constitutes extension, and that it was created by the substance of Divinity (Prop. 21, Vol. I, "Principles of Cartesian Phil.") This involved Spinoza into a still greater mistake. With his profound research he transcended the boundaries of thinking drawn by his master. And he constructed the thesis that extension is an attribute of Divinity, or God himself is extension; that Divinity, which is absolute Wisdom, is also absolute matter, constituting both the substance of thought and that of extension.

For Spinoza went further than his master in his researches and arrived at the conclusion that there were no two substances in the universe and that no substance could create another substance. Accordingly, he opined, that there is only one substance in existence and that we conceive of it by two attributes, the attribute of thought and the attribute of extension, but in reality they are one and the same thing.

As many thinkers of his time arose against him

and proved that it was impossible that matter should be the divine substance itself, he answered them according to the mistake he had inherited from Descartes and according to the still greater mistake he had devised himself. The arguments of his opponents which he cites in his own work are as follows:

“ 1.—Matter which is a concrete substance, is, as such, composed of parts. According to this it is impossible that a divisible substance should be limitless and endless, that it should be identical with the substance of Divinity itself. If we assume that the substance of matter is infinite, whatever we think of its parts would be self-contradictory. If these parts are finite we have the contradiction that the infinite is composed of finite parts; and if these parts are infinite, we have the anomaly that one infinite being is larger than another infinite being.”

This objection was supported by many evidences of great force.

“ 2.—Matter, as a concrete and divisible thing, can be actuated. But Divinity, as the most perfect Being, cannot be acted upon. Is it possible, then, that the substance which is subject to action should be identical with the substance which is not subject to action ?”

To these two objections Spinoza answered in the following terms:

“ Every thinker can find that these objections were invalidated already. The questions of my opponents are based upon the assumption that the substance of matter is composed of parts. But I have proved before that the substance of matter, as a substance, is not composed of parts (Prop. 12. 13. and the following).

Beside this, every thinker, considering the subject with care, will find that their mistake upon which they base their conclusion that the substance of matter is finite, is not the result of the assumption that the quantity is infinite; but it was generated because they assume that infinite quantity is composed of and measured by its finite parts, which, in truth, from this assumption itself we cannot draw any other proposition than this, that infinite quantity, as an infinite quantity, cannot be measured nor composed of finite parts. If they still persist that the substance of extension is finite, they commit an error like those who might assert that the image of the circle is like unto the image of a square and that, consequently, the circle has not a centre from which all the straight lines drawn to the periphery are equal to each other. Thus they put up a proposition that the substance of matter is composed of parts, or a divisible aggregate, in order to draw the conclusion that matter is finite. But I have proved before that a Substance is not composed of parts; it is infinite, one indivisible thing."

In this wise Spinoza continues demonstrating that extension is indivisible. In conclusion he says:

"Should the question be asked, why man is naturally inclined to believe that quantity is divisible? I would answer this is so, because man knows quantity in two ways: by imaginary perception and by mental cogitation. If we consider quantity as it presents itself to our imagination, as we see it constantly before us, we perceive of it as a finite thing, as composed of parts. But if we consider quantity as a purely intellectual conception, which is indeed rather hard to do, we find as I have proved, that quantity or the Substance of Extension is infinite, one and endless. These demonstrations will be clear to those who can distinguish between the perception of the imagination and the conception of the mind. They become especially clear when we consider that

matter is everywhere the same, and that we perceive of it as divided in parts only through images of the senses which are formed by various accidents, but that in its intensive being it is essentially always the same. Thus we conceive of water as water, that it can be divided in parts and that the parts can be removed one from the other. But when we think of water as a material element it ceases to be divisible and separable. So, also, water, as water, is a created object and ceases to exist: but as a substance of matter it was never created and shall never cease to be. This, I hope, will be a sufficient answer to the second objection of my opponents (who argue that matter which is actuated cannot be identical with the substance of Divinity) for that objection is based upon the proposition that matter is a divisible substance and composed of parts."

From these words, coming from the greatest and exalted philosopher Spinoza, we see to our sorrow the disgrace of mankind; how far they, together with their philosophers and scientists, are from the truth. They know not the eternal truth, the internal existence of the universe in general and of the individual things of actuality in particular. If I had found, among the philosophers of the world who succeeded Spinoza, any who were near to the truth I would have no desire to criticise his words, as I have at present no desire to criticise all the senseless and foolish things of the various religious superstitions. But I have found that all the philosophers of the world who came after Spinoza during the last two centuries still cling to his words, and that they are all removed far from the

truth. Many of them hold this Spinoza in high esteem just as he is, with the views he expressed and with the system he has contrived. Others, again, have destroyed his system, and from the material thereof have built up other philosophical structures, which differ from that of Spinoza only by their names. The one calls his system Positivism, the other Materialism, the third Scepticism, the fourth Evolution, and so forth, but they are all one in the Spinoza fanaticism. I am therefore in duty bound to step forth again (in this part of my work) to war against those who build the Spinoza structures, to demolish their edifices to the very foundation and to grind into dust their stones, so that they be dissolved again into the particles of which they were composed, for they are only divisible matter and not substance, to turn them into atoms of which compound and created matter is composed.

Spinoza says that those who assume that the substance of matter, as a substance, is composed of parts, and every thing that is composed of parts must be finite (as it is proved that it is impossible that an infinite thing should be composed of finite parts, and that it is unthinkable that one infinite thing should be larger than another infinite thing) and therefore they conclude that the substance of matter is not infinite and consequently not identical with Divinity—are

like unto those who would put up a syllogism that the image of the circle is like unto the image of the square, in order to draw the conclusion that the circle has not a centre from which all straight lines drawn to the periphery are equal to each other. In this Spinoza is perfectly right against his opponents. Those who assume that the *substance of matter* is composed of parts and draw the conclusion that the substance of extension is finite, must first assume that infinite quantity is measurable. According to this their assumption is, indeed, like the syllogism that the image of the circle is like unto the image of the square, from which the conclusion is drawn that the circle has no centre. But as we know that the image of the circle is not like to the image of the square, we consequently infer that the circle has a centre; or, reversedly, because the circle has a centre from which all straight lines drawn to the periphery are equal we know that it is not like to the square. So, also, do we know that infinite quantity, if it could be measured and divided, could not be infinite and endless. Spinoza's opponents, therefore, should know that infinite quantity is immeasurable and indivisible, for it is an infinite substance in the Substance of Divinity. But Spinoza himself, together with his master Descartes, commits a similar error. When he starts with the proposition that matter is a concrete substance, he makes an

assertion like those who say that the image of the circle is like that of the square. And when he draws the conclusion that the concrete substance, as a substance, is indivisible it is as if he said that the circle, being an image like the square with four angles, has no centre the radii of which are equal to each other. But as we know of a verity that the image of a circle is not like that of the square and that, consequently, it has a centre, so, also, *do we know* that there is no infinite quantity in the universe; that *matter is not a substance* (in the meaning of the term according to Spinoza), and that it can accordingly be divided in definite parts. "Water," says Spinoza, "if we consider it as water, is divisible in parts and the parts are separable from each other; but if we consider it as a material element, it ceases to be divisible and separable. So, also, water, as water, has had a beginning and shall once cease to exist; but waters as a material substance, never had a beginning and never shall cease to be." It is true, that water, as water, is divisible and separable; so, also, water, as water, had a beginning and shall once cease to be. But we can never conceive of water as a substance that is indivisible, whose parts are not separable, which had no beginning and which shall never cease to exist. For water, as water, is concrete matter and not a material substance; *concrete matter is not a material substance*.

The expression "material substance" is a contradiction in itself, like the expression "a square-circle." Again, Spinoza says, "Quantity is known to man in two ways: by the image it impresses upon the senses and as a mental concept. If we consider quantity as a sensual image, as we are used to see it, it is finite, divisible and its parts are separable. But when we consider it as a mental concept, as a substance, which is indeed rather difficult to do, we know it as infinite, one and indivisible." It is true, that quantity, as a sensual image appears to us, is finite, constituted of parts and divisible. I know this for certain, because it is true and we have it before us as the quantity of concrete matter. But I cannot conceive of this thing what it shall be in the abstraction when it will be abstracted of its concrete form. It is not only impossible for me to conceive or to recognize in my mind a *material substance* like this, as I could not conceive of a *square-circle*, but I know not even what that matter might be if I recognized it in my mind as a substance. Does that matter become non-matter? That matter is surely not intellect; and if in mental cogitation it ceases to be matter also, what is it then? It is true that Spinoza says, "As I have proved before." But I know not what he has proved, for in reality he has proved nothing. If he had clearly substantiated before what the quiddity is of infinite

quantity itself, I might be able to understand what he said before, that infinite quantity is not measurable. But I am now as unable to conceive of "infinite quantity," as I do not know the quiddity of a "square-circle" and yet I understand and know clearly that we have no infinite quantity in the universe either in actuality or as a mental concept, just as we have no square-circle either in actuality or as a mental conception. We have the whole universe before us; and if we scan it and search it throughout its dimensions, if we scrutinize this endless and limitless universe all through, we cannot discover a single infinite quantity in it in actuality. The universe in actuality is nothing but the compound objects it contains, which are limited by finite and not by infinite quantities. Spinoza himself argues that "as there is no vacuum in the universe, but all the parts, which are all the compound objects of the universe, are joined together and so closely linked to each other that there is no void place between them—we are forced to conclude that they are in reality not limited and not separated one from the other; that the substance of matter, as a substance, is indivisible; that this is the infinite quantity of the substance of matter which is infinite in the substance of Divinity." True it is that there is no vacuum in the universe, as I have proved also that there is no nihility. And yet I know for certain that all these

parts, these compound objects of actuality in the universe are not so closely joined or set together as to have no void space between them. But they are composed of atoms with infinitesimally small spaces separating them within, and they have void space outside taking up the room between one compound object and the other. These void spaces are not matter as well as they are not nihility. If they were matter, no motion would be possible in the universe; if they were matter they would keep all compound objects firmly each in its place and the whole universe would be one solid mass. We see this in actuality. A fish swimming in the water moves onward only because the particles of water are separated where the void spaces which are not water are between them, as I have said before; the fish has the power to separate the particles of water and to pass between them. But when those particles of water are so closely joined together as to form ice, the fish can no longer move between them, because the water, which is naturally a fluid body, becomes a solid when it gets frozen and its particles come so closely together as to reduce the spaces between them to a certain minimum. When the space between the particles of water is so reduced the fish cannot move between them. (The reason why water increases in dimension when frozen, is, that the inside space between the atoms composing

the water molecules increases, while the outside space between the molecules themselves diminishes, so that they draw close to each other and form a solid. The fish swimming in the water can separate the molecules from each other of the fluid body but it is unable to divide the space inside the molecules between the atoms. The reason and the cause of this which makes the water differing in this respect from all other fluids will be explained in the following chapter.) So, also, the water which is in the air moves about because it separates the space which is between the particles of the air, as that space is not air.

If we proceed further we learn that all the atoms which are in any compound object in the whole endless universe are in constant motion; they move about in the space in which they are immersed and which is not composed of atoms. Even if we could assent to the opinion of Spinoza and his master Descartes that the atoms are endlessly divisible, we should have to assume that there are infinitely small spaces between those infinitesimal parts of the atoms, which are not the same thing as the parts themselves, and which infinitely separate one part from the other so that those parts can move about. Thus, beside that it is folly to say that one infinity is larger than the other (for the infinitesimally small spaces which separate between the infinitesimal small parts of the atoms

must be smaller than the parts themselves) we are compelled to assume that matter, as such, as a concrete thing in motion, must be divisible in certain finite quantities and not in infinite quantity, and that there is consequently no infinite quantity or a *concrete substance* in the universe. According to this, the second objection which Spinoza cites in the name of those who say that matter is divisible, viz., "Why are the parts of matter so closely joined together that there is no vacant space between them?" is like the question which one might ask, "Why has the circle a centre from which all straight lines drawn to the periphery are equal?" after he had put up the proposition "that the image of the circle is like unto the image of the square!" The truth is that the circle has a centre and that is not like unto the square. So also, the parts of matter are not joined together, because matter is divisible. Everyone who has brains in his head should know and understand that the pores between the parts of matter are not matter as they are not nihility. If they were matter there could be no motion in the universe.

Now, that we know that there is no infinite quantity in the universe in actuality, we understand still more clearly that there is not an infinite quantity in abstraction in the intellectual conception. For the cogitation of intellect itself is but the infinite existence

itself for all the objects of actual being, as I have proved in the previous two chapters, that the intellect itself is the intellectual universe to the physical universe, and that nothing is in the Mind what is not produced in actuality just as there is nothing in actuality which is not in the Mind itself. All the beings of the actuality exist and are limited by the laws of nature, which are the unlimited laws of Intellectuality, and precede those beings and cause them to be in their existence. And as the universe in actuality consists of single parts by finite quantities, in order that it should be motion in matter by the laws of intellectuality, and therefore cannot be found an infinite quantity in matter in actuality, there is, consequently, no infinite quantity in the cogitation of Intellectuality. Moreover, those philosophers who assert that there is nothing in the mind which is not in the sensual perception, are compelled to assert also that no abstraction and no conception in the mind of any infinite quantity can be true as we have positively no infinite quantity in actuality.

Thus, the first question which Spinoza asks, viz., "If the material substance can be so divided that its parts be really separated from each other, why is it impossible that one part should turn into nihility while the other parts remain still joined together, as before?" is also extremely foolish. Everyone under-

stands and knows that matter is not made of nihility and therefore it cannot be returned into nihility, for there is no nihility in the universe. And if we should indeed ask such a question we might have to grapple with a still greater problem, viz., "Why cannot the whole universe become naught together with the Substance or the God which Spinoza has contrived for himself, since we know not what the substance is and Spinoza himself never had a clear conception of it?" The truth is simple and plain: The Intellectuality is the Absolute Eternity itself, from which the physical universe must be produced as the mathematical inference, nothing therefore of the universe can be lost! It is also exceedingly foolish when Spinoza says "I believe that I have answered to the second objection which is also based upon the proposition that substance is divisible and composed of separable parts." Although his opponents have based that objection upon the assumption that matter is divisible, Spinoza knew very well that matter is actuated, even if it is indivisible. He says so himself. Even God, who is indivisible, is according to his notion a Substance that is active and actuated. His opponents, however, who did not believe that God is ever actuated, were therefore right objecting that matter cannot be identical with the Substance of Divinity; for matter is ever actuated but Divinity is never actuated.

But if the views of his opponents are correct against Spinoza, they are untenable in reality. For those opponents of Spinoza opine that God, being perfect in the fullest sense of the term, cannot be actuated. From this we infer that God cannot be actuated but that He can be active. And this is utterly false; for if He is active He must also be actuated. Everything that is active exercises action on an actuated object, and that object which is subject to action produces a change in the force which acts upon it. According to this, if God acts in nature or in matter, the nature or matter is subject to his action, and being actuated it produces a reaction or a change in God who acts upon it. Even if the activity of Divinity exists in one single act in all eternity, Divinity must necessarily change through the acception of this act by nature or matter. Thus the opponents of Spinoza should have come to the conclusion that God and matter are identical, as Spinoza opined; for Divinity is to them only the force which acts in matter, both of which are in Him. Thus the views of Spinoza and those of his opponents concerning matter and the force that actuates it, are both alike foolish and vain.

In the time of Spinoza, Sir Isaac Newton came and established the foundation of our modern science. He understood the mistakes of the speculative philosophers but he also did not know the causes of their

errors ; and therefore, by establishing his theory of Gravitation and his three laws of motion,—although the science of Mechanics has progressed on the road of experimental knowledge through their establishment,—he reduced mankind to a still lower degree of pure Wisdom. Because, as he has conceived the mistakes of the philosophers and also the doubtfulness of his own theory, he should have scrutinized more and deeply the nature of things as they are in their isolated states; and understood that the isolated state of objects, their being separated from each other by their nature in the objective world, can positively not be due to a general universal force of attraction. As he has established the first law of motion—the “inertia,” that nothing can be changed by itself—he ought to have known, at the same time, that the variation of objects and the differentiation of forces do not lie in the objects and forces themselves, in their objective appearances, but there must be some cause or force in their deeper unity, in their general relation, in their Subjective state, which is not perceived by the muscular senses, by a *posteriori* method of reasoning, but by the conception of the pure reason of the mind, by a *priori* reasoning, and therefore he ought first to have conceived the generality of the universe and after this judged from the generality about the particularizations. And then he would know that the

individuality of objects,—their appearances in their singular states *from their generality*—must positively be generated by a general universal force of individualization, not by a general universal force of attraction; and he would not have established the theory of gravitation which has no reason, no cause and no sense, and which limits and reduces the minds of men; as he himself ordered his friend Pemberton to state in his name that the teaching of gravitation is not a propagation of knowledge and science but a limitation. But he himself, when he turned away from the speculative philosophers and warned men not to be dependent upon transcendentalism, or, as he called it, “Metaphysics,” took in mind, at the same time, the two hypothetical forces: attraction and repulsion, which were found out by the ancient philosopher Empedokles by the mistakes of his precedent philosophers, and not knowing the cause of these two forces, nor the quiddity of their impulses, he established his theory of gravitation as a general law of the universe. The falsehood of the whole theory of gravitation and the mistake which is contained in his first law of motion will be shown by positive arguments in the next chapter, where I will deal with the particularized forces working before us in matter, and with the planetary motion in general. Here, in this chapter, however—as I have to do only with the origin of matter

and force and their causes, and as Newton himself confessed afterwards his doubtfulness of his theory, by stating in a letter to Bentley as follows: "It is inconceivable that inanimate brute matter should, without the mediation of something else, which is not material, operate upon and affect other matter without mutual contact, as it must do if gravitation, in the sense of Epicurus, be essential and inherent in it," and in another letter stated: "Gravity must be caused by an agent acting constantly according to certain laws; but whether this agent be material or immaterial, I left to the consideration of my reader" — I, therefore, in this problem have only to analyze the considerations of a few of those prominent readers.

Prof. Roger Joseph Boscovich, one of the earlier of foreign savants to adopt the theory of Newton, has attempted to explain the theory of Newton in his work on the molecular theory of matter, the greater part of which was accepted by our scientists; but there is in it nothing to satisfy the mind of a deep logical man. According to Boscovich matter is made up of atoms. Each atom is an indivisible point, having position in space, capable of motion in a continuous path, and possessing a certain mass, whereby a certain amount of force is required to produce a given change of motion. Besides this the atoms are endowed with potential forces, that any two atoms attract or repel

each other with a force depending on their distance apart. The law of this force, for all distances greater than say the thousandth part of an inch, is an attraction varying as the inverse square of the distance. For smaller distances the force is an attraction for one distance and a repulsion for another, according to some law not yet discovered. The atom itself has no parts or dimensions. In its geometrical aspect it is a mere geometrical point; it is as a mere centre of force, the result of whose existence is that two atoms or centres cannot approach each other within a certain distance. But his whole theory brings man into a greater confusion than that of Newton's himself. In the first place, saying that atoms have their position in space, we do not understand as yet how it is possible that the atoms can have their position in space, and be capable of motion in a continuous path? Matter is made up of atoms, he said, that according to his view, there is no matter besides atoms, that the distance between the atoms is not matter; the question remains what is the distance itself or the universal space? If it is not matter, it must probably be nothing else than nihility; that his theory leads us to this assumption—that the atoms have their position in nihility, which keeps them in their isolated states, and makes them to move in a continuous path from one place of nihility into the other, which has no

sense according to the material facts and no reason in the mind. In the second place, he said, that the atoms are endowed with a potential force, that any two atoms attract or repel each other with a force depending on their distance apart; and this is positively false. A potential force can never be transformed into an active force as long as there is not another force which acts upon it to be transferred; the distances between those atoms are neither matter nor force; the atoms, therefore, being endowed only with potential forces were never able to transfer their potential forces into attraction or repulsion by themselves.

The later opinion is that of Le Sage, that the gravitation of bodies towards each other is caused by the impact of streams of atoms flying in all directions through space. These atoms he calls "ultramundane corpuscles," because he conceives them to come in all directions from regions far beyond that part of the system of the world which is in any way known to us. His theory is very deep and large, and it is the only theory to explain the theory of gravitation in so far to be capable of being attacked and defended. Prof. J. Clerk Maxwell has already analyzed and criticized it, in his article "Atom," in the *Encyclopædia Britannica*. But the theory in itself, besides all the many questions and contradictions in it, has no

basis in its very beginning. A theory must be demonstrated, either by experimental knowledge or by transcendentalism,—positively not by blind belief. In the first step of this theory, however, I must believe in those ultramundane corpuscles, that there are such particles *far beyond* that part of the system of the world which is in any way known to us, not being ever able to investigate them by experimental knowledge and not knowing the reason of their existence or causes by any mental process, nor to have any knowledge what is the universal space itself in which they are found and through which they act upon each other.

The hydrodynamical discovery of Prof. Helmholtz, that a vortex in a perfect liquid possesses certain permanent characteristics, has been applied by Sir W. Thomson to form a theory of vortex atoms in a homogeneous, incompressible, and frictionless liquid, which is known to our modern scientists of our days as the Molecular Theory of Gases. That a gas consists of molecules in motion, which act on each other only when they come close together during an encounter, but which, during the intervals between their encounters which constitute the greater part of their existence, are describing free paths, and are not acted on by any molecular force. Clausius was the first to express, by experimental and mathematical investigations, the

relation between the density of the gas, the length of the free path of its molecules, and the distance at which they encounter each other. He assumed that the velocities of all the molecules are equal. After their many experiments and mathematical investigations by many professors and scientists they came to these conclusions: That if equal volumes of two gases are at equal pressures the kinetic energy is the same in each. If they are also at equal temperatures the mean kinetic energy of each molecule is the same in each. If equal volumes of two gases are at equal temperatures and pressures, the number of molecules in each is the same. This statement has been believed by chemists since long ago under the name of Avogadro's law. In addition to this, in order to have a little explanation to those phenomena, they have accepted another theory; that there is a subtile, imponderable, and eminently elastic fluid, called ether, as a rare medium consisting of molecules very much smaller than those of ordinary gases. The ethereal molecules are supposed to be so small that they can penetrate between the molecules of solid substances, a so-called vacuum would be full of this rare gas at the observed temperature, and at the pressure, whatever it may be, of the ethereal medium in space. This molecular ether is assumed to act on bodies by its pressure, and for this purpose the pressure is generally assumed to

be very great. It was reserved for Helmholtz to point out the very remarkable properties of rotational motion in a homogeneous, incompressible fluid devoid of all viscosity. The theory of Helmholtz is, that the points of the fluid which at any instant lie in the same vortex line continue to lie in the same vortex line during the whole motion of the fluid. In the same subjects were found many discoveries by experiments and mathematical observations, through many scientists in the latest times; as those of Loschmidt, Oscar Meyer, Clerk Maxwell, W. Thomson and many others.

It is true, they have succeeded very much in physical mechanism, by their experiments and mathematical calculations. But their inductions, in many results and laws, are absolutely false. Here we have, for an example, two accepted laws in physics and chemistry; one of which is Boyle's law, the second Avogadro's law, in the nature of gases, by mathematical calculations; the first of which is true, as a material fact, the second, however, is absolutely false, as a natural impossibility. Boyle's law, which is usually called the law of Mariotte, is thus expressed: The volume of gas is inversely as the pressure; the density and elastic force are directly as the pressure, and inversely as the volume. This law is a positive fact in physical mechanism as well as in the nature of objects in general. The law of Avogadro, however,

is thus expressed: The molecules of all gases, simple or compound, occupy equal volumes; or equal volumes of all gases contain equal numbers of molecules. This is utterly false. Even if it will be proved by their ten thousand mathematical calculations, it is yet a natural impossibility, because all these mathematical calculations are based upon false axioms.

Two glasses of equal volumes, by equal pressures and equal temperatures, the one filled with oxygen gas and the other with hydrogen: the number of the molecules of hydrogen must positively be so many times larger than that of oxygen in these two glasses, as the "atomic weight" (or the density, according to my theory) of the oxygen is larger than the atomic weight of hydrogen. Because an atom of oxygen is sixteen times larger by its atomic weight, according to the views of our scientist, than an atom of hydrogen and, consequently, the volume of space occupied by one atom of oxygen can be occupied by sixteen atoms of hydrogen; and as the density and elastic force are directly as the pressure, according to Boyle's law, so that by equal pressure the molecules of all gases came together by equal empty spaces between the molecules; that the empty spaces between the molecules of oxygen and of the hydrogen in these two glasses are equal; the number of the molecules of the hydrogen

must consequently be sixteen times more than that of the oxygen.

Let me explain the above argument more clearly: The atoms themselves, if we will accept them as atoms, indivisible particles of matter and not compound, have no empty spaces in their bodies, *as atoms*;—for, if they will not accept them as indivisible and not compound, they have no right to speak about atoms altogether—and as an atom of oxygen is sixteen times heavier than the atom of hydrogen, that the mass of the body of the atom of oxygen is sixteen times larger than that of hydrogen; the space occupied by an atom of oxygen must positively be occupied by sixteen atoms of hydrogen. The nature of atoms is not the same as the nature of all other bodies: Two compound bodies may be equal in volume and differ in mass, on account of their porosity, but not the same is with the atoms, which have no porosity. It may be, however, that a molecule of hydrogen is composed of a larger number of atoms than the molecule of oxygen, and, therefore, being equal in volume are equal in number. But this again does not hold true. Since we have a patent fact, that from two glasses of hydrogen and one glass of oxygen, of a certain weight, we get two glasses of water, of the same weight; and since one molecule of water is said to be combined of two atoms of hydrogen and one atom of oxygen, and

one atom of oxygen is said to be sixteen times heavier than that of hydrogen ; thus, the one glass of the oxygen gas is sixteen times heavier than each of the two glasses of the hydrogen gas ; so that we now deal in this case, of the combination of water, with the molecules of two different gases as well as with the atoms together, not with the atoms alone ; we thus come to the conclusion, according to our chemists, that a molecule of hydrogen contains in itself just such a number of atoms as the molecule of oxygen contains ; the composition of atoms into molecules, according to their mathematical results, can only be when they come very close together during an encounter to act on each other ; so that the empty spaces between the atoms of a molecule of hydrogen are equal to the empty spaces between the atoms of the molecule of oxygen or to any other molecule ; thus the volume of a molecule of oxygen is sixteen times larger than that of hydrogen as is the case by their atoms ; and consequently, a glass of oxygen and a glass of hydrogen by equal pressure and equal temperature, the number of molecules in the glass of hydrogen must inevitably* be sixteen times more than in the

* A little difference may occur on account of the different numbers of the empty spaces between the molecules of hydrogen and the molecules of oxygen.

glass of oxygen, and the law of Avogadro is positively false.

The absolute fact that from two glasses of hydrogen and one glass of oxygen we have two glasses of water, which seems to be an evidence to their opinion, is, in reality, no evidence that the number of molecules in each of the two glasses of hydrogen are equal to the number of molecules of the one glass of oxygen; because there is no pure evidence at all, either *de facto* or *de abstracto*, that a molecule of water is combined of two atoms of hydrogen and of one atom of oxygen, and there is also no pure evidence that the atomic weight of oxygen is sixteen times more than the unit of hydrogen. The experiments of the many great chemists, as of Barzelius, Dialong and F. H. Keizer, upon which the atomic weight of oxygen is based, are no evidence to their result, but that the weight of a molecule (or an atom) of oxygen compared with hydrogen is eight. Those experiments are determined as follows: Pure dry hydrogen gas was passed over a red hot copper oxide, combining with the latter it formed 30.519 G. water. The copper oxide lost 27.129 G. of its weight and this figure represents the weight of oxygen in the above weight of the water; which contains thus: $30.519 - 27.129 = 3.390$ G. of hydrogen. In nearly the same way an experiment was made by Keizer. Now, instead of this, to cal-

culate plainly, that as in 30.519 G. of water was found 27.129 G. of O. and 3.390 of H. is a clever evidence that the weight of oxygen is about 8 times more than that of hydrogen, they have adopted another law that a molecule of water contains two atoms of hydrogen and one of oxygen, also without any pure evidence. If they have found that two glasses of hydrogen and one of oxygen form two glasses of water, it is not an evidence to their result, but that the porosity of hydrogen is larger than that of oxygen; and therefore, by great temperature the one volume of oxygen is condensed into the two volumes of hydrogen, becoming two glasses of water. One hypothesis cannot be the evidence for the other, as long as it is not proved by positive facts and pure reason. In the next chapter I will consider the whole of the above explicitly, here, I think, it is enough to show that even our scientists have no clear knowledge of the origin of matter.

In the same way they have adopted the hypothetical imponderable fluid called ether, not having any positive fact in actuality nor any pure reason in the mind that such a fluid *may* exist beyond our objective world. An imponderable fluid is no matter, because matter has some weight, however small. It cannot be also a spiritual or an intellectual being, because a spiritual or an intellectual being cannot be

thought capable of division in parts or in atoms; an imponderable fluid, therefore, has no existence at all.

I therefore, appear before the philosophic and scientific world with my theory, through which I explain the whole physical phenomena by positive arguments, and have discovered the mysteries of the universe. But how far have I succeeded, whether my theory is destined to mark a new epoch in the realm of thought—*history, and history alone can tell!*

Every one should know, as a patent fact, that there is no such a *material thing* as a “primitive solid substance” in the universe, which nature moulds and fashions into various objects, the largest one apart and the smallest apart, as clay is moulded in the hands of the potter. There is also no such a *preceding mass* as an “original matter” that filled up the universe, previous in existence to the objects from which they are formed. But the substance or the matter appears before us into existence as *matter*, only by the formation of the objects. Matter did not produce the objects, but the objects produced matter before us. Every substance is a composition of minute particles, called atoms, in their original, isolated state. The atoms themselves, whether they are indivisible or not, have already been proved before, and will again be proven further on. Every substance or body in manifestation before us, whether it be gaseous or liquid or

solid or vegetable or animal, the largest heavenly bodies and the smallest beings, is naught but a composition of the smallest particles, which we designate by the name of atoms, varying in their proximity to each other and in the forms or groups in which they are joined together. Even in their closest proximity these atoms never join each other so closely as to leave no space between them. The substance of every object, even gold and platinum, the most solid of all elementary substances, has a certain porosity, which is nothing else than a minute space between the atoms of their composition. Those minute spaces are positively no matter. For, matter is a thing through which we perceive the objects by our senses, it possesses the property of extension, in virtue of which every body occupies a limited portion of space, and the property of impenetrability, in virtue of which two portions of matter cannot at the same time occupy the same portion of space, while those empty spaces do not possess either the property of extension or of impenetrability. Because every object in the universe is perceived as a single object only on account of the empty spaces between them, which are not the same thing as the objects themselves, and every object is in constant motion also on account of those empty spaces, which give room for the objects to move from one place to the other, as I have said before. Now, were

those empty spaces matter, possessing the above two properties and occupying the whole universal space, all the objects of the universe were then but one solid body, not perceived as single things, and there were no motion in it. The universal space, therefore, is positively no matter. Those atoms, however, cannot be things of real or absolute existence, nor the origin of creation, nor the primitive substance or the original matter, of which manifested existence is formed.

The atoms cannot be things of real existence, for, if the existence of the atoms were in themselves as a real being, independent of any outside or previous cause, that existence should be absolute. The atoms then should be the Alpha and the Omega of creation. But in such a case it would be naturally impossible for them to undergo any change whatsoever. We know that their infinitesimal minuteness is beyond all that the imagination can conceive and removed from all connection with manifested existence. Now, if we should assume that the cause of their existence is inherent in themselves, that cause would also imply their minuteness of quantity and the stability of their positions apart from each other. And it would be naturally impossible that the same cause should force them to change their positions and their relations, to form various and different groups. It would be impossible for the cause of their absolute and separate being

to generate an intensive quality which should drive them to form various quantities, just as it is impossible for the stone in a state of rest on the ground to move by its own impulse.

The atoms cannot be also the origin of creation, for, should we accept the proposition that the atoms are the origin of creation, we would have to assume that they are possessed of various and different forces which cause them to combine in various groups and to form various objects. But this cannot be. The forces which we perceive at work in the universe manifested themselves only after the atoms are formed in groups. All the natural forces active in the universe are originated one from the other and one after the other through the variation of the groups of atoms; according to the formation of those groups the forces came into existence. There was a time when there were no human beings, nor animals nor plants on the earth, and consequently not such a force to exercise in them. The forces working in a human body, in animals and vegetables are not imported hither from another planet, nor can they be found in the atoms or in the molecules. All the manifested forces came into existence only through the process of evolution in that they are developed one from the other and one after the other in different times and by different causes. We have now to investigate the

whole thing we see before us and inquire in which or in what substance the development is found. The matter within itself possesses no power of any process of development. The atoms which compose the brains of men do not possess anything more than the atoms which compose his feet and hands. They are, moreover, identically the same in the animal, insect, vegetable and solid substances. They are identically the same in the liquid and the gaseous substances as well as in the planets, sun and stars in all the endless dimensions of the universe. The brains of men which we perceive as the highest and most perfect development dissolving, turns into various solid, fluid and gaseous substances; the same atoms which form the brain with the ability to reason, to know, to judge and contrive thoughts, form also dust, fluids and gasses; combined in other groups, they form vegetables, animal beings and members of the lowest functions of the human body. The atoms which are and remain always and everywhere identical, form compound objects widely differing in composition, structure, capacities and form. The manifested variation of those objects arises only in the difference in the grouping of the atoms. Before they are grouped they possess none of the forces which are manifested in the compound objects of our perception. So that in the matter and force before us, in the objective world, we

can positively never find the process of evolution or development. We should, therefore, assume that there is a primary substance beside the atoms by whose force the atoms are formed into various groups. But we know not of any *material* substance in the universe besides the one which is a grouping of atoms. The atoms are the *last smallest conceivable particles*, possessing the properties of matter. Hence we are forced to the conclusion that the existence of manifested objects is not contained in any material substance which is perceived by our senses (in the materialistic sense of the term), but that it originates in an abstract essence in which the atoms are formed and in which the force is inherent to combine the atoms in groups and to form the various objects of perception or manifestation. That abstract essence cannot be the pure intellect, for, no manifestation in pure intellect can be thinkable; it can also not be matter, for it would occupy the whole universal space and no manifestation could have any room in it. The abstract essence, therefore, must be of such a kind which is no matter and no intellect, it must be the *medium* between intellect and matter. Thus, the Universal Essence, as I call it, is the Emanation of the Absolute Intellectuality, the Spiritual Substance, which is the Essence of matter and force—the primitive source of all beings and objects that can be by mathematical inferences in actuality in the

whole endless Universe. It is in its essential being a radiation of Absolute Intellectuality, it exists as an eternal thought or spirit, as a photographic image radiated from the Intellectual Light, which is the Intellectual Universe. But by that radiation it becomes a something of a general germ or offspring of all things in the universe, containing them all in a potential state, in which matter and force are absolutely one; as the Embryo or the Protoplasm which is somewhat of a structure, and a growth of plants and animals, containing them in potency although the Embryo or the Protoplasm is unformed; the Universal essence, in the same conception, is an *Embryo* or a *Protoplast*, in a deeper unity, of all things of the objective universe. The Universal Essence is the *Medium* between Intellectuality and Matter. All mental images that are known one in the other in the Absolute Mind are photographed *as a whole*, through the Intellectual Light, from their idealistic state into a potential state, which is the Universal Essence, and then they are transformed in an actual existence, one from the other and one after the other, in single images, in a concrete form, by mathematical inferences, which are the laws of nature, the rules of Intellectuality, through that Medium, through the potential state of the Essence, as they are known beforehand one in the other in the Absolute Intellectuality.

The Universal Essence, forming out of itself objects of force and matter, which are not absolute and ever-changing, it never ceases to be, in the whole or in any of its parts, absolute and eternal. The one Absolute Emanation, which is the one and the first cause and the one law by which the essence exists in its absoluteness and by which non-absolute formations are produced is always in the potency of the Essence itself and identical with it. Every created object, which we perceive as a real compound of force and matter, existed, before it was formed, in a latent state in the object which preceded it, and in its turn it contains in a latent state objects that will follow it into existence. Reversedly speaking, the objects that have passed away still exist in a latent state in those which now are. Thus, the latent potency from which objects issue forth and into which they merge again, is the real, absolute and internal existence of the universe. The force and matter of which created objects are composed, are not force and matter in an absolute sense, nor are they things that exist by themselves and whose existence is real—but they are products of the active manifestation of the potency (the cause and the law) of the Absolute Emanation which becomes, through the Intellectual Waves of the Cogitation in Intellectuality, a general activity in the Universal Essence—the substantiation of the Essence itself. It

is a spiritual thing emanated from Intellectuality, in so far, that its existence is an absoluteness in Him; it occupies no space nor possesses any property of matter. It is not a spiritual thing of the theological sense of the term or that of the "Spiritualists," but it is the general essence of the Universe, as an absolute generality. It is a Spiritual substance representing *imperfectly* the whole intellectual image of the whole Intellectuality through the Intellectual Light, as a photographic image, in which all mental images are photographed from their idealistic state into an essence of a potential existence. But at the same time it comes to be the protoplast, the first germ of all things, in so far, that being actuated by the Absolute Emanation, which is the Intellectual Light, to be emanated from the Intellectual waves, it excites and retains itself in a vibrating state, producing thereby spiritual waves in the whole Essence, from which isolated points are thrown off from their generality into an individual state, by the first cause of transformation, becoming thereby, at the same moment, the first property of matter, to occupy a certain place in that Essence, as an *individual being*. Those isolated points I call Atoms, the beginners of matter. Those atoms must be, as a consequence through the same cause, equally generated, in quantity, quality and in their distance from each other in the universal space.

The doctrine of many of our scientists is, that the atoms are elementary bodies possessing different qualities and different quantities. According to their views the one absolute and infinite nature of the universe consists of a certain finite number of elements, which is a contradiction in itself. I have already proved the uncertainty of their views, and will bring proof against the induction of Dalton's law explicitly in the next chapter. Here, however, I can scarcely do more than make this general remark.

Let us examine the following instance: Sulphur and Mercury (hydrogyrum) are admitted by our scientists as two elementary bodies entirely different one from the other. Grind the sulphur and the mercury into the finest possible dust and mix them together their mixture will not produce any new combination. But if we put them together in a retort and place them on the fire, they combine and form Cinnabar, an object which is unlike either of the two. Through this examination we see clearly that, as long as the sulphur is sulphur and the mercury is mercury, no third object could be formed of their combination. Only when you put the mixture on the fire, and that force destroys the identities of the two objects, when the fire, so to speak, burns the sulphur and the mercury so that they cease to be what they are—only then is the cinnabar produced. That instance holds true

in all chemical combinations. Every atom of each of their elementary bodies, as long as it has its identity, its intensive quality in its common temperature, can never be combined with another thing to form a third object. A new object can only be produced when every atom of its "elements" is destroyed by higher temperature—by fire,—when it ceases to be what it is; when it loses its identity and consequently when it is resolved and divided into simpler forms of matter, which do not possess the same qualities as that atom in which they were combined. It is, therefore, clearly proved that each atom of every "element" contains more than one description of matter. Thus, these elementary bodies, which are admitted by our scientists as "elements" (uncomposed and undivided) because all efforts of chemistry have hitherto failed in their decomposition, are, in reality, compound objects only; they are composed of simpler forms of matter, and are decomposed by every chemical combination. Man does not possess the ability to contrive those elementary compositions, the atoms are infinitesimally small beings, and all the crafts of man cannot avail to combine them into molecules; our chemists, therefore, regard them as elementary particles, and that they are quantitatively and qualitatively different one from the other in their primitive states. But the truth is, nature itself knows not of those elements

which our scientists have invented for; it is one eternity, contained in one absolute Essence in which there is absolutely no change and no variation.

The Absolute Emanation, which is the one cause or force of transformation,, transfers all the spiritual points from their generality into their individualizations to become *at once* individualized by the one property of matter, to occupy a certain place in the Essence ; the one property which we call *Extension*, or Impenetrability, which are one and the same. That every particle of matter occupies a limited portion of space and that space which is occupied by one particle cannot be occupied at the same time by another particle. Besides the property of extension, no particle of matter, either in its primitive and isolated state or in any aggregation of bodies, possesses any other quality or property. All the atoms of the endless universe are equal to each other in quantity and in quality, which is nothing more than the *extension*—the quantitative quality, which they possess in their isolated states as well as in their grouping of any kind; they are also equally distanced one from the other, but only in their isolated states, only in their first formations. All the different kinds of properties, in which bodies represent themselves to our senses, are not properties of matter, but modifications or transformations of that general activity.

The general force, which brings forth the atoms in their actual existence, is the same force, by the same action or impulse, that keeps them in their state and form. The atoms, although they are indivisible and conceivable only by our intelligence, are still distinct individuals, each of them separately occupying some space, and are, therefore, capable of being intellectually conceived as consisting of a number of constituents—of parts, that go to make up this individual body—the atom, since the space bounded by the atom can be conceived to be infinitely divisible. That force must be located, therefore, in the centre of the atom, whence it exercises its binding influence on all parts equally. For, the general force of transformation is not a material force; it is not produced in an object through its material formation after it is formed, that its exercise should be properly qualified to the whole mass or volume of that object, or to exercise its whole power in every particle of matter of that object alike. But it is a spiritual force, and remains always the same; its action or impulse is the spiritual vibration of the Universal Essence, which occupies no space, through which spiritual points are thrown off from their potential state—from their generality into their individualizations; and in that moment, when the spiritual points extend themselves in space, becoming individualized in the form of matter, the

spiritual force remains absolutely the same in the Absolute Emanation, which is the Intellectual Light of the Intellectual Waves of Intellectuality itself which is never extensible. The impulse of the spiritual force itself is to transfer all objects from their generality, in which matter and force are absolutely one, into their individuality, in which matter and force are separately perceived, and, therefore, the force cannot be extended with the atom in space; it cannot fill up or occupy the whole volume of the atom, but it must remain in the Absolute Emanation and must be located in that spiritual point as it was before in its generality, before it becomes extension; that point I call the Centre, and that spiritual force which is located in the Centre I call—Centrality. The definition of the word "force" in my whole system is, therefore, the power of conservation in every body, which is the force of Centrality.

It is evident, that the force of Centrality is not the hypothetical force of "gravity or attraction," which is said to be located in the centre of every body to attract everything to it, according to the views of our scientists, but it is a force of conservation. Its impulse is to keep the atom or the body in its peculiar state and form, and there is no other force in the centre besides the Centrality. We must, therefore, conceive the atoms in the first moment of their creation,

being extended in all sides alike, as regular spheres, whose radii were equal. The force of Centrality is the one tender or innermost force or principle in the universe, which holds and correlates the universe together in one gradual, harmonious and eternal scale of creation, according to fixed, immutable and unvarying laws of nature, which are the Laws of Intellectuality, the God of the universe.

CHAPTER IV.

UNIVERSAL MECHANISM: MOTION AND ITS TRANSFORMATION.

THE force of Centrality, bringing forth the atom in its individual state, brings an excitement in each and every conceivable point or part of the body of the atom, producing thereby a vibration in all its parts. The excitement of the atom is the act of the influence or reflection of the force of Centrality in the centre through which the matter of the atom is acted upon; by receiving the action of the force, the matter becomes vibrating, producing the motion in matter. Thus, the force of Centrality is the active force, while the force of motion is passive. The motion is dependent upon the force of Centrality, as long as the influence of Centrality acts in the matter of the atom, there is motion in matter. Should, however, the force of Centrality cease to exist, the motion together with the matter would, then, also cease to be in existence.

The influence of the force of Centrality, yielding and imparting itself to all parts of the atom, diminishes itself according to the square of the distance from the centre. We have already explained, that the atoms, although they are physically indivisible, because they are not composed from, nor can be divided into simpler forms of matter, yet, since they are distinct individuals, and extend themselves from their spiritual state—from the centre—each of them separately occupies some space, they, therefore, consist of a certain number of constituents—of parts—however small, that go to make up this individual body—the atom, that it should be able to occupy a limited portion of space. So that we are able to draw imaginary circles in the body of the atom around the centre till its circumference; the sphere nearest to the centre will be the smallest and the sphere bounded by its circumference the greatest. The Centrality being conceived to exist in the centre, its influence to keep the body of the atom in its individual state, in order that no particle of the body should remove from the centre, exercises with its whole power in the parts of the first imaginary sphere, four times weaker in the parts of the second imaginary sphere, nine times weaker in the third sphere, and the weakest at the circumference of the body. For the distance of the second sphere from the centre is two times greater than the distance of

the first sphere, the spherical activity in the second sphere is, as a mathematical consequence, four times weaker; the distance of the third sphere from the centre is three times greater than that of the first, the spherical activity in the third must be nine times weaker, and so on. So that the influence of Centrality divides itself in as ever as many parts. Hence the above law, that the influence diminishes according to the square of the distance.

The vibration of the particles of the atom is quite the reverse; it increases according to the square of the distance from the centre. It is the greatest at the circumference and naught in the centre. The normal vibration is in the parts of the first sphere, four times greater in the second sphere, nine times greater in the third, and so on. For, the parts of the first sphere, being the nearest to the centre, do not retain the vibration in themselves; it passes over by the constant action of the centre to the second sphere, where being so much increased as the influence of the centre is diminished; and as the influence of Centrality constantly acts, producing every moment new vibration in the first sphere, which must pass over again in the second sphere, the second sphere, however, cannot be in greater vibration than as proportional to the diminishment of the influence: the new vibration, therefore, must be passed over to the third sphere, where it is so

much increased as the influence is diminished in that sphere, and so on, until the last sphere, which is the circumference of the whole atom, where the greatest force of motion lies.

Now, there arises a struggle between two forces: the force of centrality tending to keep the imaginary particles of the atom in their place of the body, and the force of motion tending to remove them from the centre. And if in each part or point of the atom both forces were equal and opposite, there would be a destruction of both forces, they would neutralize each other. But, as the magnitudes of the two forces are not equally opposite in each and every part of the atom, the parts nearest to the centre have the greatest magnitude of Centrality and the parts of the circumference having the greatest magnitude of motion, a resultant force must be combined from the two opposite forces. Let me explain more clearly:

The force of centrality can never cease to be what it is, for it is a spiritual force from its very beginning and it must remain the same for ever, never changing; its impulse constantly acts on the matter of the atom, whereby the motion must ever be produced; the motion can be changed from one form to another, but it can never cease to exist as long as Centrality exists. The particles of the body of the atom can never remove from the centre to occupy a larger space, for

the Centrality bringing the atom in its individual state it holds the body as such; from the moment the atom becomes extension it can extend no more or less than it is. Those particles, again, cannot keep their place, for the motion compels them to move. There must be, therefore, generated a resultant force, combined of the two, to regulate the power of the two forces. But as the shape of the atom in its very beginning must be a spherical one, having extended from its spiritual point in all sides alike, the resultant force cannot be generated in that sphere: for it is different forces equal and opposite in different directions. Each and every particle of the circumference of the atom looking eastward has the tendency to move in a straight line eastwards, the other particles looking west do the same in an opposite direction, and this is the case with each other. The shape of the atom must be, therefore, changed into another form, by such a mechanical way by its own impulse: While the parts of one side tend to move in their direction, the parts of the other side keep them back; and thus is it with all sides; the motion of all the sides incessantly jumps back to the centre and incessantly swings again from the centre, bringing thereby a new excitement into the centre; the Centrality, therefore, changes its position in the atom, so that the shape of the atom is changed from a spherical one into an oval form, longer

in one direction and shorter in the other; more massive in one end of the long diameter and thinner at the other. (Such a change in the form of a body we find in mechanics in a swinging machine). In such a form the resultant force came into play, to bring the atom in a circular motion around its own axis.

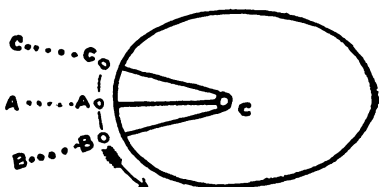
This resultant force is a mechanical result. The impulse of Centrality is only to keep the body of the atom in its state, in order to be an atom in its certain volume and mass, no more and no less, and has entirely no power to attract any particle to the centre. The first conception of matter and the first cause of the physical universe is positively the extension *alone*, caused only by the same force of Centrality, and therefore, no force of "attraction or gravity" in matter can be thinkable; for, were any force of attraction or that so-called force of gravity in the centre of the atom or in a centre of any body, then no extension could ever be possible in the universe; the property of extension, as well as its term, is positively contrary to the term and property of gravity. The matter itself from its very beginning till the highest development of bodies possesses only the one and the first property of extension, to be diffused from the centre into more space, not to be attracted to the centre. Thus, the impulse of Centrality, as it is not a force of gravity, is not a direct opposite force to the motion; it serves only

as a resistance to it, and in the same time, it produces motion. The direct opposite forces, however, are the different directions of the motion of each part or point of the circumference only, and those opposite forces came into combination to bring the resultant force:

Since the shape of the atom has changed in such a figure, that the point A of the circumference has its tendency to move in a straight line A—A with the greatest power of motion, and the

FIG. 1.

point B has its tendency to move the straight line B—B with a smaller power,



and the third point C has the tendency to move the line C—C, in the other side of the point A, with still smaller power; the resistance of the centre C on the point A is the smallest, on the point B five times greater and on the point C nine times greater, while the motion produced by the centre C on the point A is the greatest, on the point B five times smaller (nine times minus four) and on the point C nine times smaller; and in the same way the resistance of the point C on the point A is four times smaller than the resistance of the point B on the point A (nine times minus five); the point A, therefore, makes a tangent between the line A—A and B—B

with four times greater power than it could make between the lines A—A and C—C (nine times minus five), and in the same way are measured all the points and all their lines around the centre. The resultant is then ascertained by the parallelogram of forces, to move from the greatest tangent around the centre, that the atoms have a circular motion around their own axis. In such a way there is no motion in the centre and the greatest motion is in its circumference.

From this very result we have found the fundamental cause of the most important law of Mechanics, —the “parallelogram of forces,”—that all the resultant and combined forces came into play only through Centrality and motion, as a necessity.

The Centrality which caused the motion of the atoms in their first state, the revolving of the atoms around their axis, causes again an increase in the rate of motion. The influence of Centrality acts constantly, producing every moment new motion, and, therefore, a stronger tendency in the particles of the circumference to move from the centre with a greater power, must ever be produced in its second state, which may be called the centrifugal force. And since the particles of an atom cannot be separated from one another, there must be a tendency of the whole atom to move from their occupied position in a straight line forward.

In this way a new struggle of forces in different directions ensued ; the particles of the atom of one end tend to move it in a straight line in one direction, the particles of the other end in another; the result is that the whole atom starts to move in a circumference of an ellipse with the thickest end beyond its area, when all the struggling forces come to this resultant.

The atom could not move in a straight line in the direction of one of its ends, because it was prevented from doing so by the other end ; neither could it swing to and fro in the swinging area of a pendulum, because it was prevented from it by the motion of the upper and lower parts of the atom. The motion of the atom in its first state, it may be thought, is to swing to and fro, because it is a force, but not so can be the case with the matter. And, again, if the atom had the same equal motion in all its parts, it would have moved in a circumference of a complete circle (if there were a cause to it), but as the thickest end of the long diameter has a greater motion than the thinner, and both of these ends a greater motion than the short diameter, it starts to move in an ellipse with its thickest end always out of the area of this ellipse and always beyond it, as in such a way all the different rates of motion are at an equilibrium with the force of Centrality, and this is the way through which a double movement of each atom—around its axis and

in an elliptical way in the universal space, with which the long diameter of the atom makes a certain angle,—has originated. Thus, we have established two absolute universal laws in nature: The first law is, that every individual object in the universe is in *constant motion, inherent in itself*, and the second law is, that the motion in every object must be modified in an *internal double motion*.

The double motion is the nature of objects by themselves. Every object consists of an aggregate and immense number of small particles or atoms of matter, holding together by one common centre to be a body by itself; so that the influence of the centre acts upon every particle of the body to keep its state and position in the body, producing herewith a vibration in each particle, and those vibrations are opposite to each other in their different directions; the Centrality, therefore, holding the body to be a body, is to regulate all the different directions in one result of a mechanical way, in a double motion of the object *by its being an object*, and, therefore, the sum of the motion of an object by its own nature must be proportional to the number of the atoms, to the mass of matter of that body.

The atoms through their elliptical way in the Universal Essence must meet one another, and coming in contact form one body with one common centre

For, the meeting of the two atoms traveling from different directions causes a cessation of motion at their points of contact, and at the same moment the forces of Centrality of both centres of the atoms come together to the points of contact which are at rest, and build up one centre in those points of contact in which the force of Centrality of both atoms is now located. In this way a great number of atoms become one body with as many times greater force of the influence of Centrality, as there had been atoms to combine. These bodies I call molecules. Each molecule has its centre, wherefrom the influence of the force of Centrality divides itself equally to all its component parts. But since the atoms by their motion form an inclined angle from their axis to their ellipses, and move with the thickest end beyond the area of their ellipses, touch one another in their union by a very small portion of their bodies, therefore, in the formation of the first molecules is caused a greater porosity. These molecules of this kind are, therefore, the lightest; and as hydrogen is the lightest of all the chemical elements, at the present time, I may have the right to say, that the molecules of hydrogen (or, as the chemists call it, element) are the first molecules (or element) in the universe, all of which possess the same quantities, the same qualities and the same law of double motion, according to their mass, to the number of atoms as there had been to make up one molecule.

When the first atoms were converted into the said molecules, there were produced empty spaces in the Universal Essence, which gave birth again to new atomsequally distanced from each other. These atoms moved with greater rapidity than the first atoms. For, the Universal Essence which is the potential energy and potential matter in the latent state of the universe, in which matter and force are still absolutely one, containing all objects that ever can be in an actual existence according to the Absolute Laws of Intellectuality, all their causes, effects, and all their modifications in its *one* latent potency, it becomes influenced, by every effect of every object of actual existence, to be revealed in about the same form of actuality from its potency gradually. And, therefore, being influenced by the rapid motion of the first molecules, it gives rise to the new atoms to possess a greater magnitude of motion. Thus the new atoms, formed between the first molecules, attain a greater motion than the latter. The new atoms, having a greater velocity of motion, cannot move with the thickest end beyond their area, as the first atoms—wherefore, coming in contact with one another, must meet by a greater area, of their respective bodies; and consequently the atoms, having combined themselves in this way, have been created in a new kind of molecules, having smaller pores between their component atoms, hence the creation

of the more compact molecules of Lithium. When the universe was filled with molecules of Hydrogen and Lithium empty spaces gave rise again to new atoms with still greater motion than the previous ones ; the rapid motion caused them to come together still closer and formed a third kind of molecules, of Beryllium, after them the molecules of Boron, Nitrogen, Oxygen came into existence, and so on. All the other molecules, which are recognized by our scientists as "elements," came into existence one after the other in the same way, according to the different modes of combination of the atoms, which were continually formed and continually acquired more and more velocities from the already created molecules and bodies. All these molecules (or elements), which came into existence one kind after the other, are different in quantity according to their mass of matter, to the number of atoms that are combined, and are different in qualities according to their different porosity, or, as I call it, the different *density*.

And as all the molecules came one after the other and one is influenced by the other, there is, therefore, a remarkable relation between the intensive properties of the elements and their densities, that the molecule Lithium, which came into existence after hydrogen and was influenced by it, has a remarkable relation in its metallic state to Hydrogen and is only a little more compact than hydrogen.

The "Periodic Law" which has been pointed out by our scientists of the present day, by the Professors Newlands, Odling, L. Meyer and Mendeleejew, which is expressed as follows: "A very remarkable relation has been shown to exist between the quantivalence of the elements and their numerical order of their atomic weights," has a scientific sense only in their material facts, but not to their relative knowledge, regarding the cause of the relation of the "elements" to the "atomic weight," which has no reason by the absolute knowledge, as it knows nothing about "atomic weight or specific gravity," but knowing only the *molecular density and their influences*.

Thus, we have established again another absolute universal law: Every massive body in rapid motion causes by its influence all the smaller bodies moving near it, with a slow velocity, to increase their motion, according to the quantity, direction and distance of the moving massive body. But the force of influence diminishes according to the square of the distance between the two bodies, and the distance in this case is measured by the length of the radius of the body which exercises the force of influence on another body. In the first distance, accordingly, the force or influence of the large body is so great that all the surrounding bodies in that distance lose their peculiarities of their own double motion, and falling upon the circum-

ference of the large body they become parts of it, to move together in its peculiarity.

This law is the most important law in nature in all its physical phenomena, in the variation of objects in all their combinations in chemistry, in all the modifications or transformations of motion in physics, and this law gives us a clear and a new idea about the planetary motion in astronomy as well as in the phenomenon of the falling bodies.

But before I advance to explain by pure general arguments the whole universal mechanism, I must analyze the three laws of motion, established by Sir Isaac Newton, upon which the greatest part of the whole modern science is based and which are proved, as positive facts, by the whole experimental mechanical knowledge in the hands of our scientists, and his definition of the term "force," and examine them whether they do agree with my whole universal mechanism or not.

Here are his three laws of motion :

First law.—Every body continues in its state of rest, or of uniform motion in a straight line, except in so far as it is compelled by force to change that state.

Second law —Change of motion is proportional to force, and takes place in the straight line in which the force acts.

Third law.—To every action there is always an equal and contrary reaction; or the mutual actions of any two bodies are always equal and oppositely directed.

And here is the definition of the term "force," according to Newton:

"Force is whatever changes the state of rest or uniform motion of a body."

First of all we have to inquire very deeply what is force? The definition of Newton tells us nothing about it. Saying that "force is whatever changes the state of a body," simply means, that there is no other force in the whole objective world besides this which changes the states of a body, and this is positively false. Every one must understand that as we have a "force of change" we must positively have a *force of conservation* in the whole objective world *before us, previous and most important* to that "force of chach;" because if there were no force of conservation in the objective world there were no existence for an objective world, and consequently there were no need for a force of change at all. A piece of matter which is left to itself—not acted on by forces, said Newton, preserves its *state*, whether of rest or uniform motion in a straight line; he must consequently be so kind as to recognize, at the same time, that while the piece of matter preserves its state it must have some force or power to be conserved. A piece of matter existing must have some force or power to exist. That force of conservation of every piece of matter, again, must be, also, as a positive fact, inherent in that piece

of matter *within itself*. No piece of matter of the whole objective world exists by the force of conservation of another one. One object may be influenced, in any way, by another one, but it must have, first of all, its own existence to exist at all. So that the "force of change" cannot be, positively, inherent in any piece of matter within itself. As it has its own force of conservation in itself; that the force of conservation must be proportional to its mass, in order that each particle of that piece of matter should be conserved in the certain state of the whole, it cannot possess, also positively, in any particle of its mass, at any instant of its time of existence, a force of change to destroy or to contradict itself. And again, in the second law of motion, Isaac Newton said, "change of motion is proportional to force," which simply means, that the force which acts on motion is not the same thing with the motion itself upon which it acts. So that the "force of change" is neither in the matter of the object nor in the motion of it. Thus, there is no force of change in the universe at all; and thus the definition of the term "force," according to Newton, which is accepted by the whole experimental mechanical world, is absolutely absurdity.

The truth itself, however, is clear and plain. The whole physical world before us *exists*, and therefore, first of all, we must know clearly either of the

two: either there is a general universal force who bestowed existence to all, or there is some individual forces of existence in every one of all that exist; that every existing thing of the whole physical world, in whatever state and form it may be, possesses its own force of existence as its own property, or each of them possesses a part of that general force of universal existence. The question is only this: What is the general force of universal existence, or what is the cause of the force of existence of every one?

I have already clearly explained before, by pure arguments, that the particularized existence of every thing of the objective world—as a non-absolute—is produced by the general existence of the universe entire, of a subjective world of absolute existence. That the general force of transformation transferring all the Spiritual Waves from the vibrating essence into physical waves as an objective world, becomes thereby the *Central Force of Conservation* in every one of the physical waves of the whole objective world—in the atoms. And that the influence of Centrality produces motion in the atoms, and at the same time it combines and regulates itself with all the different directions of the motion in one certain state—in a *double motion*. So that, in reality, there is no force of change in existence in the universe at all; and if all bodies of the whole objective world were equal in

mass and volume there were never any change in the whole universe; for the Centrality and motion would always be regulated in every body in one certain state. But since the regulated states of the atoms are of double motion—moving around their own axes and traveling in the universal space in an elliptical way—a great number of atoms, therefore, meet one another, and coming in contact they form one body—the molecule, possessing a greater force of that motion and leaving empty spaces in the universal space between one molecule and the other, through which new atoms are produced, possessing smaller forces of that motion than the molecules between which they are found; and since the spaces occupied by those molecules and atoms are the Universal Essence itself of potential existence, which contains all objects and all effects in latent potency, and which is within itself in an eternal Spiritual vibration, the spaces themselves in which the molecules and atoms are found, are, therefore, affected by the different kinds of motion of those molecules and atoms to be vibrated in about the same kinds of motion as the states of the objects are found, and this affection diminishes according to the square of the distance from the object through which it is affected. So that the space occupied by a large object influences all the surrounding smaller objects, according to the square of the distance, to be in a

stronger force of motion than they possess within themselves—their peculiarities must be changed, and the space occupied by a smaller object, possessing a weaker force of motion serves as a resistance to the stronger force of motion, of the surrounding larger objects, also according to the square of the distance, their peculiarities must also be changed. Thus, all objects of the world are in an eternal struggle of existence—in offensive and defensive states—in *action and resistance to action*.

The force of Centrality, however, although it is the central force of every individualized object and by keeping the object in its individual state produces motion in it, which causes the change of the objects, is, still, the general force of conservation of the absolute existence of the universe as a whole; so that the force of Centrality is absolutely not the force of change in the objective world. Being located in the centre of one object, producing motion in it, and regulating itself with all the different directions of the motion in one certain state, to be an object for itself; and not forgetting to be located, at the same time, in the centres of all the objects of the endless dimensions of the universe, producing motion in every one and regulating itself with all the different directions of the motion of the whole endless number of the different objects, in the smallest as well as in the greatest, to indi-

vidualize them all in their individualizations—it does not cease to be, still, the absolute general force of conservation of the universe as a whole, the absolute existence of its generality; it ceases not to be the Interposer between God and the physical world,—the Medium between Intellectuality and Matter.

Intellectuality itself is the very existence in All, the vitality and the whole life of the Spiritual as well as of the physical universe. He is the general idea of the universe entire; forming in our mind a general abstract image of all the objects that may be in existence by natural laws, existing for Himself and by Himself as a pure Ideal Being—we conceive the Intellectuality itself, the God of the universe. His very Being is the Cogitation, the Thinking Power in Him, an Intellectual Vibration from one infinity into the other: from the infinite number of Intellectual images of all objects that may be in existence into the infinite Intellectual Laws or Mathematical Inferences, and again from the infinite Laws into the infinite Images, as I have demonstrated in the previous chapters. Here, however, I must repeat this: Since an image of a certain object is a product of a certain law, that law must consequently be previous to that image; and since a law of a certain image is a product of another certain image—because there cannot be a law to a certain image of an object without a previous object

through which the law is generated to produce a new object—that image must consequently be previous to that law. Every law must be previous to every image and every image must be previous to every law. We thus understand clearly the Endlessness of the Thinking Power, that there is no beginning to any law and no end, and there is no beginning to any image and no end ; the beginning of a law is the previous image and its end is the succeeding image, and the beginning of an image is the previous law and its end is the succeeding law. Since there is no image without a previous law and there is no law without a previous image, we thus understand clearly that the whole infinite number of images and the whole infinite laws are bound up in the one Absolute Bond, as an Absolute Unity, in Intellectuality. That one infinity is enclosed in the other without beginning and without end. And again, since every one must be conceived to be previous to the other, we thus understand, also clearly, that all images and all laws are separately conceived, each of them mentally individualized, *one in the other*, in their Absolute Unity ; and that the Intellectual Vibration or the Divine Activity generates by and retains in Him by Himself ; He is not active and not passive ; there is nothing upon which it passes over His action, and there is nothing whose action passes over on Him. And finally, since the

Intellectual Vibration oscillates from one infinity into the other—as an image of the one infinity—the infinite number of images, each of them containing its whole infinity, is produced by a law of the other infinity—of the infinite inferences of the whole mathematical bond—and a law of the one infinity is produced by an image of the other infinity, the whole infinite vibration of Intellectuality, therefore, consists of Intellectual Waves, each of them separately cogitated and singularly conceived *one in the other* in their Absolute Unity, producing thereby an Intellectual Light in the whole Intellectuality, from which the Universe as a whole, the Spiritual Substance, is photographed.

That Spiritual Photograph—the Absolute Emanation—is not like a photographic image which is made before us in actuality, upon which particles of the lighted body are actually passed, and which possesses, therefore, its own material, or separated existence, no more depending upon the lighted body. The Intellectual Light of the Intellectual Activity, however, is an Eternity within itself, nothing can be separated from it and nothing can be added to it; the Spiritual Photograph—that Absolute Emanation—therefore, can have no separate existence without the Lighted Intellectuality. The Intellectual Waves, again, are not like the material waves of the heaving sea, which rise in one second and are reduced to the mother element in the

next to make room for other formations like them, and, therefore, are only material modifications of the heaving sea. The Intellectual Waves, however, being Intellectual Inferences, one Wave is a mathematical inference from the previous Wave and at the same time a mathematical inference to the following, they can never be modified, as Spinoza opined, one Wave can not be reduced to make room for the other, as one truth cannot destroy the other truth; one truth is true only because all truths *remain* true, they all are, therefore, One Eternity in Intellectuality, incessantly vibrating and incessantly producing Light, from which the Universal Essence is continually emanated and continually conserved.

So that the Universal Essence, the source of matter and force, the source of all that exists in actuality, is but the reflection of an eternal existence; no destruction, no corruption, no evil and no force of change can be found in the Source of all that exists. The very Being of Intellectuality, the Divine Activity, is the internal existence, the innermost life of the Universe as a whole as well as of its individualization. The Absolute Emanation, being the Spiritual Photograph of Intellectual Light in bringing over the whole Intellectual Images from their idealistic state into a potential state, as spiritual waves in the Universal Essence, and transferring them into single objects of

•

actual existence, it brings over the whole innermost life of Divine activity to every one of all that exist—to be the Central Force in their centres and to produce motion—*the life of every one*.

But since the Divine Activity incessantly gives forth the Essence and incessantly bestows existence to all, the Central Force, therefore, continually brings over the existence in actuality and continually produces motion; and therefore, while the Intellectual and Spiritual Existence, occupying no space and having no time, in which no superfluity can be thinkable, is eternal and boundless, the actual existence occupying space and having time must be changed by superfluous existence. The force of Centrality constantly acts in the matter of the atoms, and constantly producing motion, the atoms must change their position *in space*, and coming in contact with one another form a larger body *in time*, leaving empty spaces for a *new generation* of new atoms *in time*, occupying a new kind of position *in space* which is already affected by the previous larger bodies; and thus begins the struggle of life—the offensive and defensive action, which is the process of Evolution, through which all bodies must be changed. Thus, the change of position in space and time is the indirect cause of change, and, therefore, Newton's definition of the term "force" has no sense either according to the

experimental mechanism or according to the transcendentalism of pure reason.

Let me now consider Newton's first law of motion. He said :

"Every body continues in its state of rest, or of uniform motion in a straight line, except insofar as it is compelled by force to change that state."

It is positively true, that it is impossible for the stone in a state of rest on the ground to move by its own impulse, and no piece of matter can be changed by itself; still, Newton's first law of motion is absolutely not correct, on account of the following reasons:

1. The state of rest of the stone or of any body on the ground, is not a property inherent in it to be continued in that state, and not to be changed by itself. Every one must understand that the state of rest of every body on the ground is caused by an outside cause, either by the force of " gravitation " according to Newton himself, or to the influence of the velocity of the larger body, as I have explained above and as will be more demonstrated in the following pages; and therefore, we have the right to say: *Every body continues in a state of rest as long as it is compelled by force to be in that state, but as soon as that force ceases the body retains its own peculiar state*, but we have absolutely no right to say that every body continues in " its state of rest," except as it is compelled by force

to change that state, because no existing thing—as *it exists*, and as there is no other existence besides the motion in it—can have any property of rest within itself, except insofar as it is compelled by an outside force to be in *a relative rest*.

2. It is a positive fact, that there is no piece of matter in the whole objective world, that is left to itself, not acted upon by outside forces, and therefore, no piece of matter can be found *by itself* in a state of uniform motion in a straight line. It is true, the *tendency* of motion is naturally uniform, to make the body moving in a straight line, logically and mathematically, except insofar as it is compelled by force to change that state, as I have also said as a logical truth in the second chapter of this volume, and upon which my whole arguments on the atomic motion are based, because the motion of every body, *when it should be left to itself*, when there were not any curvilinear cause acting on it, could not make the body move in any other way than of a uniform motion in a straight line. But as there could not be a piece of matter which should be left to itself, not acted upon by outside forces—because the whole objective world before us consists of single bodies, in their being different from one another in mass and volume, through which each of them must be acted upon, to be changed, one by the other—no piece of matter, there-

fore, can be found, in actuality, *in its own state* of uniform motion in a straight line, and, therefore, it is an absurdity to say, as a law of nature or as an axiom to experimental Mechanics, that every body continues in its state of uniform motion in a straight line, except as it is compelled by force to change that state, while, in reality, such a body in such a state of uniform motion, by *its own impulse*, has no actual existence at all.

A piece of matter may be found in *a state* of uniform motion in a straight line when it is directly compelled by outside forces to be in such a state, as is the case by a system of forces, that piece of matter being a member of a machine; but in such a case it can be in that state only as long as that force, or the whole system of forces, acts on it so as to keep it in that state, but as soon as that action ceases that state of the uniform motion must be changed, and, therefore, Newton's first law of motion cannot be vested even in such a kind of motion.

Moreover, in Newton's comments on the first law, he introduces the rotation of a body about an axis as another of those "states" in which it will continue—in virtue of the first law—until force acts to compel it to change that state. That this new form of state is also maintained in virtue of "inertia," which is, according to Newton, a general property of matter, in

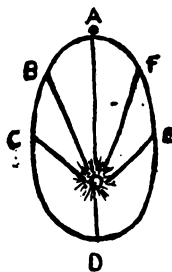
virtue of which it is incapable of varying in any way its state of rest or any state of motion *that may occur in it*. Upon this "axiom" Newton ventured to explain the three laws of planetary motion, discovered by Johannus Kepler, by the additional hypothetical force of "gravitation," and upon which the whole mechanical, physical and astronomical sciences are based, and which is absolutely false.

Let me begin with an explanation of Kepler's three laws for the general reader :

First law. Every planet moves around the sun in an ellipse, in one focus of which the sun is situated.

An ellipse is an elongated circle, in which we imagine two centres or foci at a distance from the periphery of $\frac{1}{4}$ of the elongated diameter of the ellipse. In the imagined elliptical orbit which all the planets make in their moving around the sun in the universal space we have found the situation of the sun always in one of the foci of an elliptical orbit, and, therefore, the planets in their motion around the sun are sometimes nearer to the sun and sometimes further from it. When the planet reaches the point D (Fig. 2), it is nearest to the sun, and we say then that it is at the lowest point of its ellipse, in the perihelion. When it arrives to the

FIG. 2.



point A it is at the furthest distance from the sun, in the aphelion, at the highest point of its ellipse.

Second law. The radius-vector joining each planet with the sun moves over equal areas in equal time in every part of the planet's orbit.

The radius-vector is the straight line drawn from the sun to a planet, to any point of the planet's orbit. The earth, for instance, is a planet completing its course around the sun in 365 days, 5 hours, 48 minutes and 7.7-10 seconds. In that period of time, which we commonly designate as one year, she runs around her whole ellipse and returns to the point from which she started. On July the 2d she is in the highest point of her ellipse, in the aphelion, or at the greatest distance from the sun. On January the 2d she is in the lowest point of her ellipse, in the perihelion, or nearest to the sun. She runs her course from the aphelion to the perihelion in about $182\frac{1}{2}$ days and again from the latter to the former in the same period of time $182\frac{1}{2}$ days, and thus she completes her circuit and returns to the starting point. According to this, we might imagine that a fourth part of the ellipse is run by the earth in $91\frac{1}{4}$ days. But such is not the case. The second law of Kepler shows that the speed of the earth's motion is not equal to the line it must pass, but to the area of space which its radius vector has to cover. Figure 2, represents the ellipse of the

earth's motion around the sun. It is divided in six equal triangles from the focus S, where the sun is imagined to stand, to the periphery, the line which the earth travels in one year. The triangles ASB, BSC and CSD are perfectly equal to each other, *i. e.*, the area of space contained in the one is equal to the area of space contained in the other. In the same manner are the triangles on the other side of the ellipse DSE, ESF and FSA equal to each other and to the former three. The lines AS, BS, CS, DS, ES and FS represent the radius vector at six various stations of the earth's journey around the sun. In a measure as these lines get shorter, the arcs of the ellipse between them get longer. Imagine now that the earth starts on her annual course from the point A. According to the second law of Kepler she must run in the first two months not the sixth part of the periphery, but the sixth part of the area of space contained in the entire ellipse. Thus in January and February she runs only from A to B, because these two points forming a triangle with S represent just a sixth part of that area. In the next two months her radius vector must cover an equal area, or the triangle BSC, and the earth therefore runs from B to C, which is a longer distance than from A to B. In the two following months she runs the whole distance from C to D, because the area of the triangle CSD is just equal

to the area of each of the former two triangles. Her speed accordingly increases as she approaches the point which is nearest to the sun. On the other side of her ellipse she makes her way back to her starting point at a speed of reversed proportions. She runs very fast in the first two months covering the whole distance from D to E; from thence to F she runs slower; and from F to A she runs still more slower, her speed always decreasing in a measure as she gets further from the sun. We have divided the ellipse in six parts to make our explanation short; but the reader will easily perceive that the motion of the earth develops in speed gradually in a measure as she gets away further from the aphelion (designated by the point A in our fig.); and reaching the perihelion (designated by the point D) on her way back to the starting point, her motion becomes gradually slower as she proceeds. Thus if we divide the ellipse in as many equal triangles as there are days or hours or minutes in the year, the proportion of the time the earth makes in her course will always equal the triangle of space covered by her radius vector, and not to the corresponding length of the arcs of the ellipse she describes; she will move always faster, describing longer arcs, until she reaches the perihelion, and her motion will become correspondingly slower on her way back to the aphelion. At the same ratio of speed do all the

planets move around the sun, according to the second law of Kepler.

Third law. The squares of the times of revolution of any two planets are proportional to the cubes of their mean distance from the sun.

The square of the time of the earth's revolution around the sun is $365 \times 365 = 133,225$ days. The planet Jupiter revolves around the sun in 4,332 days, the square of which is 18,766,224. The proportion between these two squares is $18,766,224 : 133,225 = 140 : 1$. The mean distance of the earth from the sun is twenty million German miles. The cube of this distance is $20 \times 20 \times 20 = 8,000$ million German miles. The mean distance of Jupiter from the sun is 102 million German miles, which gives us a cube of 1,061,208 millions. The proportion of these two cubes is equal to the proportion of the former two squares; $140 : 1$. Thus according to this law, if we know the time in which a planet or satellite or comet completes its revolution around the sun, we can find its mean distance from the sun by comparing it with the time and distance of any other orb revolving around the same luminary; for these proportions hold good by comparison between any two given orbs revolving around one focus.

Kepler discovered these three laws by his ingenuity and by careful study and diligent research into the works and calculations of the astronomers that

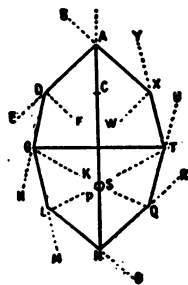
preceded him. He found that the sun with all the planets revolving around him form one system and each of them obeys these three laws in its revolution. But he did not venture to search into the causes of all this. About fifty years later Sir Isaac Newton came and undertook to explain, that the revolution of the planets was caused by two side-forces working together on the planets, one of which is the gravitation of the sun, as a centripetal force, to attract the planets to his centre, and the other is the motion of the planets themselves, as a tangential force, to move *in virtue of "inertia"* in a straight line from the sun, through which the resultant force, to move in ellipsis, according to Kepler's three laws, is produced: This he explained by the following three principles:

1. *Gravitation.* That every body attracts every other body according to its mass, and the force of attraction diminishes according to the square of the distance between the two bodies. If the distance between the two bodies be doubled, the force of attraction will be diminished four times ($2 \times 2 = 4$), and if they be removed from each other at a distance three times as great, their force of attraction will be diminished nine times ($3 \times 3 = 9$) and so on. The distances in this case are measured by the length of the radius (half of the diameter) of the body which exercises the force of attraction on another body.

2. *Inertia.* This is his first law of motion, mentioned above: that every body continues in its state of rest, or of uniform motion in a straight line, except in so far as it is compelled by force to change that state.

3. *Parallelogram of forces.* That two forces acting together upon a body, pushing or pulling it in two different directions, which form an angle when they meet, will produce a resultant force driving that body in the direction of the diagonal of the parallelogram of the angle. This principle is known as the *parallelogram of forces*, or the *resultant* of forces according to their respective magnitudes, and which is positively true, as I have demonstrated before.

By these three principles Newton ventured to explain the laws of planetary motion discovered by Kepler, as shown in this figure which illustrates the rotation of the orbs of our own solar system.



The sun, as we have said before, is the heaviest body of the whole system, which we call our solar system; his weight is 700 times as much as that of all the planets which revolve around it. He is situated in a focus of the ellipses which all the planets describe in their course around him. This focus we designate with the letter

S. Stationed in his focus the sun attracts to him all the planets of his system. But those planets are at the same time actuated by another force which drives them in a different direction. They are in motion, and their own inertia drives them in a straight line onward and away from the ellipse, or path they pursue around the sun. Every planet is thus actuated by two forces—the gravitation of the sun and its own inertia—pulling it each in a different direction. It must, therefore, run in a line which forms the diagonal of the parallelogram of these two directions. Imagine a planet, running from east to westward, at the point A of this figure. By the momentum of its motion it is driven in a straight line toward B. But the sun stationed in S pulls it to himself in the direction of C. The planes of the two forces form the angle BAC. The result of their simultaneous action is that the planet is driven in the line AD, the diagonal of the parallelogram of this angle. Arriving at the point D the planet is still actuated by the same two forces ; its own motion drives it toward E and the sun pulls it in the direction of F. As a result the planet runs toward the point G. From that point again, its own inertia would carry it in a straight line to H, but the sun draws it towards himself in the direction of K and it must consequently run to L, passing the sun southward. From that point again the diagonal of

MLP takes the planet in the direction of N, which is the lowest point in the ellipse. In the same wise as it has run from the highest point of the ellipse, A, to the lowest point N, it is driven backward to A again by the same two forces. The sun pulls it to himself in the direction of S, and the impetus of its motion would carry it toward O; it is, therefore, impelled to run in the diagonal line toward Q. As the sun still pulls it to S while the momentum of its motion would carry it to R, it is compelled to move in the direction of T. Further on, the two forces working incessantly upon the planet, the sun pulling it to V and the force of motion driving it to U, the planet runs on the diagonal of their angle which is the line TX. Finally, its own inertia pushes it toward Y while the sun pulls it in the direction of W, and our planet must in consequence run in the diagonal line until it reaches A, the highest point of the ellipse. It then begins to run its course anew and over and over again, because the two, the centripetal force of the sun and the centrifugal force of motion, continue working upon it incessantly. Our figure is made to represent the planet running between eight given stations, and its course is, therefore, described as a broken or angular line. But bearing in mind that the two forces work relentlessly and incessantly upon the planet, it will be easy to conceive that the devia-

tion toward the diagonal of the parallelogram occurs on every point of its course, and that the latter is, therefore, a perfect ellipse and not an angular line.

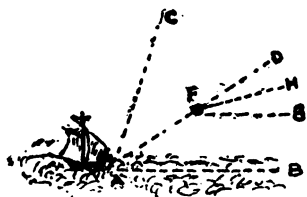
The motion of the planets in their ellipses around the sun according to the parallelogram of forces, shows why their speed varies: When the planet is near the highest point of its ellipse it is far from the sun, and the gravitation of the latter is weaker according to the square of the distance; the planet is therefore pulled at a slower rate. Passing the two upper triangles (DSA and ASX in the figure) its velocity increases in proportion as it comes nearer to the sun, or as its radii vectores get shorter and the third side of the triangle—which is the arc of the ellipse—gets longer; when it arrives at the point Q its speed is still more increased because it then comes within the shortest distance from the sun.

Such is the explanation of the three laws of Kepler, and this is the whole basis of the sciences of physics and mechanics, as an indisputable verity, since Newton has presented it to the world, and in reality, that explanation, as well as the basis of those sciences, has no sense at all, because the above two side-forces do not exist in nature at all, neither as active forces, nor as rational conceptions.

The falsity of the force of “gravitation” I have mentioned many times in many pages of this volume

before, and I will entirely annihilate it in the following pages. Here, however, while I only deal with their first law of motion, and with their conception of the property of *inertia in matter*, I will consider more carefully the property of inertia in matter and prove that their "inertia" and all their "explanation" of Kepler's laws, as well as of all other phenomena, are absolutely false.

The parallelogram of forces is a well-known principle in mechanics. Two forces working on one body, pulling or pushing it in two directions which meet at an angle, will produce a resultant force equal to the diagonal of the parallelogram of that angle. If one of these forces ceases to act and the other remains, the body which is acted upon will move in the direction in which the remaining force propels it. The resultant of the parallelogram of forces exists only as long as the two forces act together; but as soon as either of the two is destroyed, the resultant ceases and the body



yields entirely to the remaining force. This is illustrated by a vessel afloat on a river. Imagine a vessel carried by the current of the river from point A toward B in this figure with a force that would make her reach that point, say, in one hour. But a storm arises which

drives her toward the point C with equal force at the same time. We have in this instance two forces, the current and the wind, acting upon one body; the one pulling her on the plane AB and the other pushing her on the plane AC. The angle formed by these two lines is CAB. The result of the action of the two forces will be that the vessel will go in the line AD which is the diagonal of the parallelogram of the angle at which the two forces meet. The vessel will move on this line as long as the two forces act together upon her. But suppose the storm ceases when she reaches the point F and the vessel is left entirely to the force of the current. She will at the same time turn off the diagonal line which is the resultant direction of the two forces acting together upon her, and strike out on the line FG which marks the direction of the current; the resultant force which carried her toward D was destroyed at the moment the wind ceased to blow. If the wind, instead of ceasing altogether, should lose only half of its force when the vessel is at the point F, the resultant force of the current and the enfeebled wind would change and carry the vessel toward the point H, because the line FH would in this instance become the diagonal of the angle formed by the two forces. It is the same in every case, that the resultant force changes according to proportion in which one of the side forces yields to

the other, and ceases altogether when either of these forces ceases to act.

Let us now examine the theories on the origin of planetary motion. The ancient physicists opined that the motion was generated by the first push; Kant and Laplace thought that the planets were jerked into space from the body of the sun by the force of his revolution around his axis; the metaphysicians believed that a mystic power, a God or an angel, came and put the planets in motion by his *free will*, so that they keep on moving on a plane from east to west and not upward above the sun or downward below him, lest the force of his attraction pull them to him. This arbitrary will divine, moreover,—let us assume—throwing the planets into space, endowed each of them with the amount of force its motion required to counteract the gravitation of the sun, each of them with the velocity needed according to its proximity to that voluminous body. The planet Mercury, which is nearest to the sun received the greatest velocity so that it should be able to resist the attraction of the sun which acts upon it with the greatest force. Venus which stands a little farther from the sun and is subject to his attraction in a lesser degree, received a smaller gift of velocity. Thus, we assume, the free will divine has portioned out to all the planets the amount of velocity they require to resist the attraction

of the sun in measure as they are distant from him, so that they may observe the laws of Kepler and of Newton. After the first push the power divine withdrew to the spheres of Tohu-Vabohu and left the whole universe, the suns and the planets to be conducted by immutable forces or causes, and the force of gravitation he delivered into the hands of Sir Isaac Newton to instruct mankind how the motion of the planets is caused by the resultant of two side forces. One of the side forces is the attraction of the sun, the other one is the force of motion within the planets themselves, and the resultant of the two is the ellipses in which the planets revolve around the sun. But their Divinity or Kant and Laplace have forgotten to enlighten us before they left this world why the diagonal of the parallelogram of forces, was kept up all along the ellipse of the planet since the force of the first push was destroyed. We can well understand how this diagonal was formed in the first instance. The sun pulled the planet to itself in a straight line in the direction of S in the figure, and the first push drove it in a tangential direction toward B; and the planet had to move in the line AD which was the resultant of these two side forces working upon it. But at the moment the planet moved in that line the side force of the first push was destroyed, while that of the sun's gravitation never lagged and never can diminish as long as he will keep his mass.

They say that a force once in action will continue its activity; hence, a body set in motion by a certain force will continue moving in virtue of inertia until another body comes in its way to stop it. This principle cannot be applied to the motion of a planet which was started by the first push. The force of motion thus imparted to the planet could continue only as long as there was no other force to check it. But at the very start there was the force of gravitation on the other side which at once made of the force of motion a side force, and the planet had to go by the diagonal of the parallelogram of forces. Thus the force of the first push was destroyed at once. In the second moment that force did not exist any more, not even as a side force to that gravitation of the sun. The planet was like the vessel (the above figure) which, driven by two forces, that of the stream and that of the wind together, went by the diagonal line toward F; but as soon as the wind stopped she yielded entirely to the force of the stream and broke away from the diagonal line. In this wise our planet, after the force of the first push was broken, could not continue in its distant track from the sun but should have made directly toward the latter if the force of gravitation continued undiminished.

We have a similar illustration in an arrow shot from a string. For a certain distance that arrow runs

in a direction opposite to that of the earth's gravitation. But as soon as the force of the first impulse is exhausted, the gravitation of the earth—as our physicists explain—begins to assert itself. The force of the shot becomes a side-force driving the arrow in the direction it was started; the gravitation of the earth forms another side force pulling the arrow downward; the resultant of these two forces is the diagonal line in which the arrow descends to the ground. But if we observe this incident closely we find that the arrow shoots quite a long distance before it begins yielding to the gravitation of the earth. If the inertia of force were a true principle, and the force which has thrown the arrow in the air were sufficient at the start to resist the gravitation of the earth, the arrow should by the force of inertia continue its motion all the time in the direction in which it was started. And, as it finally yields to the force of gravitation, so should the planets have yielded to the gravitation of the sun as soon as the moment of the first push was exhausted after they had been thrown into space.

Our scientists, however, say that there is a great difference between an arrow or a ball shot into the air and the planets thrown by the first push into space. The former is from the very start impeded by the denseness of our atmosphere; the force of the impulse which set it in motion is enfeebled by the friction of

the air. The mathematician Vega showed by his calculations that a cannon ball weighing 4 lbs. and running by the impulse of the shot a distance of 6437 feet would run in space vacant from air a distance of 23,226 feet, thus the friction of the air diminished the force of the shot by 16,789 feet distance. Hutton showed by similar calculations that such a ball weighing 6 lbs. and running 2000 feet by the impulse of the cannon shot must push a weight of 600 lbs. of air in its course. The force of the shot is naturally diminished according to the density of the atmosphere; each particle of the element resists and enfeebles the force until it is exhausted at last and the ball falls to the ground. According to this the arrow shooting through the air is resisted by the latter. The density of water is 777 times greater than that of the air; a body moving in water is impeded by the friction of that element 777 times more than it would be by the friction of the air. But the case is not so with the planets which move in space where there is no dense atmosphere like ours to resist their force of motion.

This argument, however, does not hold good for the simple reason that, if the friction of the air wears off the force of motion of an arrow or a ball, there are greater impediments yet in the way of the planets in space. It is an axiom adopted by all physicists of the present time that there is no empty space in the

universe. Sir Isaac Newton himself, the author of the theory of gravitation, asserted that light is a fine substance which fills space and falls upon the retina of the eye with a certain gravity or weight. Other physicists maintain that the whole space of the universe is filled with a rarified substance which they call æther. Our astronomers find that the comets are disturbed in their course by a certain rarified substance which fills the universe. Now let us compare the impediments which our air puts in the course of a cannon ball with that which meets the planets in their course in space. It is an established principle of mechanics that resistance increases according to the square of the speed of the moving body—*i. e.*, if two bodies move in one element (in the air or in water) one at the speed of two feet in a second and the other at the speed of four feet in a second, the resistance of the element to the latter will be four times as great as its resistance to the former. Imagine a horse drawing a wagon at the rate of 4 feet in a second, and a steam engine pulling one at the rate of 40 feet in a second; the resistance of the air to the motion of the former in proportion to that of the motion of the engine will be like 1 to 100:

Horse power=4 ; resistance= $4 \times 4 = 16$.

Steam power=40 ; resistance= $40 \times 40 = 1,600$.

$16 : 1,600 = 1 : 100$.

Let us now take the calculations of Vega into consideration. According to that mathematician a ball, which we will designate as Ba, moving in the air a distance of 6,437 feet is opposed by the element with a force equaling the distance of 16,789 feet. Suppose a second ball Bb moving in the air twice the distance of the former; it must have an opposition twice as strong, thus:

Ba moving 6,437 feet=opposition 16,789.

Bb moving 12,874 feet=opposition $12,874 \times 12,874 = 165,739,876$.

If Bb was moving in space where it encountered no opposition its motion would be faster: $12,874 + 165,739,876 = 165,752,750$. Comparing the opposition of the air to the two balls we get the following result:
Speed Ba : Bb = 6,437 : 12,874.

Resistance Ba : Bb = 16,789 : 165,739,876 = 1 : 10,000. In other words, if Bb moved in an atmosphere 10,000 times more rarified than the air it would move at an equal rate with Ba. Let us now imagine a third ball Bc moving in our air four times faster than Ba; its speed would be $6,437 \times 4 = 25,748$ feet, or a little more than a German mile, in a second. The resistance of the air to that ball would accordingly be $25,784 \times 25,784 = 662,959,504$. Comparing this with the resistance of the air to Ba we find that it is 40,000 times stronger—*i. e.*, if Bc was moving in an atmosphere

40,000 times more rarified than the air we breathe, it would meet with as much resistance as the ball Ba.

According to these calculations, if the planet Mercury was moving in our thick atmosphere at the speed he moves at present, 6.7 German miles or 153,048 feet in a second, he would meet a resistance 1,334,000 times greater than that of the ball Ba.

Ba 6,437 opposition=16,789.

Mercury 153,048 x 153,048=23,423,690,304.

16,789 : 23,432,690,304=1 : 1,334,000.

We must assume, accordingly, that the atmosphere in which Mercury moves is over one and a third million times more rarified than our air.

Even if we should assume that the atmosphere in which the planets move is still more rarified, say ten million times more than the air we breathe (although such an assumption is beyond all that our physical science can entertain) we must admit that there is a resistance to their force of motion which is bound little by little to destroy that force of the first push they have received. The accepted rule of mechanics is, as we have mentioned before, that the velocity of moving bodies compares directly with their respective sizes, and the resistance of the air to their motion increases according to the square of speed. Thus, if the atmosphere in which the planets move is ten million times more rarified than our air, its resistance

to their motion is only ten times less than that of the air. If then the motion of the ball Ba is resisted by the friction of the air with a force equaling the speed of 16,789 feet in a second and the ball must, therefore, fall to the ground in 5 seconds,—the planet Mercury would have to fall to the sun in 50 seconds after it was started by the first push.

But more than 50 seconds have passed already since Mercury was set aspinning in space and he does not think of falling to the sun yet. We are forced to the conclusion then, that the force of motion was not imparted to him by the first push, in virtue of inertia, nor that he is affected by any law of gravitation. And what is true of Mercury is also true of all the other planets of our system.

Let me return to Newton's first law of motion in which is expressed the property of inertia: When a piece of iron is heated by fire, we see that the heat increases in it every moment and it gradually decreases by its cooling, when the fire is passed. Our scientists ascribe such a phenomenon to "inertia." That every impulse of the heat which the piece of iron receives by the fire every moment is maintained in it in virtue of inertia, and therefore, the increasing of the heat is proportional to time, and the same is in the reverse: it decreases gradually by the impulses of the cold atmosphere, which are also maintained in the

iron in virtue of inertia. By the same illustrations they explain numerous phenomena, of the intensive as well as of the extensive properties of bodies, by their "inertia of matter." The uniformly accelerated rectilinear motion, for instance, that a body moving under the action of a constant force will move in the line of action of the force, and will acquire in each second an additional velocity; that the body's velocity is continually *increasing* during the time of the action of the force; and all the laws which apply to such a state of a moving body, which are also the laws of the uniformly accelerated motion of the falling bodies—the first law of which is: *The velocities are proportional to the times during which the motion has lasted*, the second: *The spaces described are proportional to the square of the times employed in their description*, and so on—are regarded also as the property of inertia of matter. And who would undertake to enumerate the phenomena in nature supposed, by our scientists, to be explained by it! Still I venture to assert, that their general conception of the property of inertia, as well as their definition of the term which it designates, and all their hypotheses on all the phenomena appeared before them in the nature of things internally or externally, are absolutely false.

Every one must understand that the property of inertia—if there is, in reality, such a property in mat-

ter—is the power *in* every piece of matter to conserve its own state and form, to defend its own intensive properties against any attack of any outside power which contends to change it into another state and form; and therefore, when it is already conquered and compelled by any outside power to change—*physically*—any part of its intensive properties, it still continues *by its internal inertia* to defend itself against that power, as long as it is not entirely destroyed *chemically*—insofar as to preserve *again* its *entire* previous properties by its own power of inertia as soon as that outside power ceases. As a piece of matter if it could be left to itself would preserve its state in virtue of inertia, that inertia must consequently be *inherent in it* as long as it exists in its *certain* chemical state, so that if any physical change occur in it by the impulse of an outside force, that change cannot be more than proportional to that force—as Newton himself tells us in his second law of motion—that it must be proportional to the momentum, magnitude and direction of that outside force. And since the physical change of the piece of matter must be *strictly* proportional to the outside force—because the inertia *in it* is the *counter-activity, the resistance*, equal and opposite, as Newton himself tells us in his third law of motion—that physical impulse, consequently, cannot be converted in the same piece of matter as an inherent power in it

to conserve the physical change in it; that the same piece of matter should maintain that physical change in itself in virtue of its own inertia, because the innermost inertia of that piece of matter—as long as it exists in its certain chemical state—is the counter-activity, the power in it *to be defended against that physical impulse*.

The property of inertia in matter is nothing else but the influence of the force of Centrality holding each physical object in its chemical bond. The first action of the influence of Centrality is the chemical process in nature, that two atoms coming in contact, by their elliptical motion, the Centrality of both atoms, then, comes together in the points of contact which are in that moment at rest, and form one *double-atom* as one body by one common centre, as I have demonstrated before, and at the same time a great number of atoms of the surrounding space, *pair by pair*, come together, with the same momentum, and form one molecule in one chemical bond, leaving empty spaces in the Universal Essence for a new generation of new atoms, through which physical changes are produced. So that the chemical process of atoms, molecules, bodies and of all the physical objects that may be found in the endless dimensions of the universe is the influence of the *spiritual* force of Centrality holding them all in their chemical bond,

which we have the right to designate with the name of *Inertia in matter*. But the same influence of Centrality continually produces motion, causing incessantly physical changes outwardly, as I have demonstrated also before; that the first molecules, having their momenta according to their masses, influence the whole space around them to be in greater vibration, thus causing the new atoms to possess a greater momentum than the previous atoms, through which a physical change, *by time and space*, is already generated outwardly; the chemical process of those new atoms, therefore, must be quite different than that of the first atoms, and grouping together into one molecule they possess different qualities through the outward physical changes, causing different porosities, and hence—a new kind of molecules which are also by their chemical process conserved. By the same order, through the physical changes, many molecules of the same momentum come together and form a large chemical body of the same qualities and many molecules of different momenta come together and form chemical bodies possessing different qualities, all of which are conserved by the same *internal* chemical process, by the one spiritual force of Centrality—the *inertia in matter*. The physical changes of the objective world are the products of the different momenta and the moments of momenta, the different

magnitudes and directions of the motion of the molecules and bodies in different times and spaces, by which new chemical processes are ever produced. One impulse of a physical change is the beginning or the first step of a chemical process, the second impulse of the same physical change is the second step of the chemical process, and so on, until the object is decomposed and then is composed again. The action of chemical processes is the composition and the action of physical changes is the decomposition of objects.

Pure iron, for instance, which is recognized by our chemists as an element, which has a white color and perfect lustre, extremely soft and tough, as long as it has no trace of carbon and silicon, possesses its first chemical process, so to speak, to be composed as an iron-object. The outward physical changes produced *by the spaces in times* of the different vibration of atoms and molecules in the Universal Essence brought about the grouping of a large number of atoms to be composed in a certain proximity to each other by one common centre to be the composition of our pure iron object. That pure iron when it is mixed up, by physical changes, with carbon and silicon undergoes a new chemical process, by which we obtain ordinary black iron. From that black iron we may prepare the pure iron again, according to Mitscherlich, by introducing into a Hessian crucible four parts of fine iron wire

cut small and one part of black iron oxide. This is covered with a mixture of white sand, lime, and potassium carbonate, in the proportions used for glass-making, and, a cover being closely applied, the crucible is exposed to a very high degree of heat. A button of pure metal is obtained, the traces of carbon and silicon present in the wire having been removed by the oxygen of the oxide. We see clearly, that the very high degree of heat, which is the outward physical change—insofar as it brings a greater quantity of motion on the piece of iron—has decomposed our piece of black-iron, through which there has been separated the pure iron apart, to remain in its previous chemical process, and the carbon and silicon apart, to undergo a new chemical process. The first chemical process of the iron has been produced by the physical changes of the atoms and molecules in space and time, bringing a certain number of atoms in a certain group by a certain proximity to each other; then came carbon and silicon, which are also groups of atoms by different proximity to each other, by their chemical processes, and acted upon each other; all their actions are only the outward physical changes, their different momenta, the different magnitudes and directions of every one in space and time, through which they produce upon each other a greater quantity of motion, which is *naturally* a higher degree of heat, by which

the atoms of all the groups begin to move hastily, to be diffused from their previous proximity, to be decomposed, and they all were mixed up in one group, in a new chemical process, producing our black iron. And when it is introduced into the above crucible with oxygen, it becomes decomposed again by a very high degree of heat, which is *naturally* a very great quantity of motion, that all the atoms of the one group are diffused again from their previous proximity; and as the atomic motion of the oxygen group possesses a greater velocity than many other groups, on account of their peculiar kind of proximity, the atoms of the oxygen group are earlier diffused than those of the other groups, causing a greater influence, by their larger velocity, upon the atoms of the other groups, in that crucible, and losing their own peculiarities they become combined with the oxygen group, and our black iron remains alone as a pure iron object again. Such is the case with all other iron compounds and such is the case with all the molecular compounds, from the minerals up to the human brains.

The general laws of chemical combination accepted by our scientists may be, in some ways, quite different, and therefore I must analyze the first principle of the theoretical chemistry more explicitly, in order that we may get clearly the pure knowledge of Universal Wisdom.

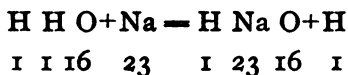
First of all they have accepted the atomic hypothesis of Dalton, which is based upon the following two laws: 1. *The law of equivalents*, according to which the replacement of elements one by another always takes place in definite proportions; 2. *The law of multiples*, according to which the several quantities of an element A which can unite with a fixed quantity of another element B, stand to one another, for the most part, in simple numerical proportions. The observation of these laws has led them to the idea that the elementary bodies are made up of indivisible particles called atoms, each having a constant weight peculiar to itself; and that chemical combination takes place by the juxtaposition of these atoms, 1 to 1, 1 to 2, 1 to 3, 2 to 3, etc., a group of atoms thus united being called a molecule. Then, they admit that the main character which distinguishes true chemical combination from mechanical mixture consist in this, that the mechanical mixture always exhibits properties intermediate between those of its constituents, and in regular gradation, while there is no gradual blending of one into the other in the chemical combination, but each compound is sharply defined by an impassable gulf. Then, they admit that the atomic weight of oxygen compared with that of hydrogen is 16 to 1, and that a molecule of water contains two atoms of hydrogen and one of oxygen, and in such a way they have accepted many

suppositions, all of which are based upon the atomic hypothesis of Dalton.

The main argument of the supposition of our chemists, that the equivalent weight of oxygen compared with that of hydrogen is 16 to 1, is based upon the following experiments: When sodium is thrown upon water, 18 parts of that compound ($= 2$ hydrogen + 16 oxygen) are decomposed, in such a manner that half of the hydrogen is expelled by an equivalent quantity of sodium, 23, and *sodium hydroxide* (Na HO) is formed, containing—sodium 23 + hydrogen 1 + oxygen 16. This compound remains in the solid state when the liquid is evaporated to dryness; and if it be further heated in a tube with sodium, the remaining half of the hydrogen is driven off, and anhydrous sodium oxide remains, composed of 46 parts sodium + 16 oxygen. From these two experiments it follows that the composition of water is $=$ hydrogen $(1+1)$ + oxygen 16, the composition of sodium hydroxide is $=$ hydrogen 1 + sodium 23 + oxygen 16, and the composition of sodium oxide is $=$ sodium $(23 + 23)$ + oxygen 16.

Regarding these results in connection with their atomic hypothesis of the constitution of bodies, they have supposed that each molecule of water must contain one atom of oxygen and two atoms of hydrogen; for if it contained only one atom of hydrogen, then, since the first action of the sodium is to expel only

half the hydrogen, it would follow that each atom of hydrogen would be split into two, and that each molecule of sodium hydroxide would contain only half an atom of hydrogen; this, however, is at variance with the fundamental notion of atoms, namely, that they are indivisible. These two atoms of hydrogen are combined with a quantity of oxygen weighing 16, which is therefore the smallest quantity of oxygen capable of entering into the reaction under consideration:



and they have found that the same is true with regard to all other well-defined reactions in which oxygen takes part. Hence, this quantity of oxygen, 16 parts by weight (hydrogen being the unit), is regarded as the weight of the atom of oxygen.

But, after begging pardon, and after conferring honor and due respect on every one of the whole philosophical and scientific world who have succeeded on the road of experimental knowledge in *mechanical* chemistry, physics, astronomy and in all other branches of modern science, I must say that all their hypotheses upon which their experimental knowledge is based are absolutely untenable.

In the first place, we must understand that every smallest conceivable part of oxygen—let it be sup-

posed to be the molecule or the atom of oxygen—is oxygen ; the smallest conceivable part of hydrogen is hydrogen, and the smallest conceivable part of sodium is sodium ; and at the same time, when oxygen and hydrogen combine themselves into water, the smallest conceivable part of water is then also nothing else but water, and when sodium with oxygen and hydrogen combine themselves together, forming (Na H O) sodium-hydroxide, the smallest conceivable part of this compound is then also nothing else but sodium-hydroxide. No one of the whole scientific world can deny this ; for those “elements,” as they are recognized by our scientists as elements, not composed of simpler forms of matter, are positively nothing more than what they are, since every smallest conceivable part of an element must be equal to itself. Water as a compound object, too, must also be equal to itself. As the whole amount of those elements, each smallest conceivable part of oxygen and each smallest conceivable part of hydrogen constituted together so the compound body of water, so that the whole quantity of oxygen and the whole quantity of hydrogen *have been converted into that body of water ;* and as we find this verity also in the facts of actuality, that water, whether obtained from natural sources or formed by direct combination of its elements, always contains in 100 parts by weight 88.9 parts of

oxygen and 11.1 of hydrogen, so that the whole mass of those elements, their quantities by their *whole weight*, is now the very quantity of the body of water—we must therefore conclude also, as a positive fact, that the *least smallest conceivable* part of water is neither oxygen nor hydrogen, but only water alone, and this verity is positively true with all the compounds of the whole physical world. We thus are forced to conclude, as a positive fact, that all the elementary bodies lose their “elementary” peculiarities, their whole qualities, by the action of the chemical combinations, and that the essential character which distinguishes true chemical combination from mechanical mixture consists in this, that the mechanical mixture has only to do with the quantities of the objects, while chemical combination has only to do with the qualities of the objects.

Since the quantities of the compounds are the very quantities of the elements from which the bodies are composed, the chemical action, therefore, composing the compounds changes, consequently, only the qualities of the elements, while their quantities remain the same; and since the *entire* quantities of the elements are the very quantities of the compounds, possessing *entirely new qualities*, the previous qualities of the elements must consequently be *entirely destroyed* by the chemical action; that Dalton's

"atoms" of oxygen and hydrogen, when they are combined into water, have ceased to be atoms of oxygen and atoms of hydrogen, becoming only atoms of water; that those "atoms" have been *decomposed* by the chemical action from their *previous compositions*; that all the "elementary bodies" accepted by our scientists are positively no elements, because they are also composed of simpler forms of matter and capable to be decomposed; and finally, since those "elements," each of which possesses different qualities, are composed of simpler forms of matter, those simpler forms of matter, if they should possess different qualities, must also be composed of simpler forms of matter, and so on. Thus we are forced to this conclusion—that there are positively no elements in the universe at all.

In the second place the atomic hypothesis of Dalton, that the elementary bodies are made up of indivisible particles called atoms, each having a constant weight peculiar to itself, has a logical contradiction in itself and is a natural impossibility. Because, as each atom has its peculiar weight, so that there is to be found one atom larger in weight, which simply means larger in mass than the other, we have no right, any more, to say that those atoms are indivisible particles; for, the larger atom can be divided, by its mass, and can be conceived to be split into so many parts

of matter as the smallest atom contains. If the atom of oxygen is said to be larger in weight, larger in mass, sixteen times more than the atom of hydrogen; the mass of matter of the oxygen-atom can positively be divided into sixteen particles of matter, each of which will be equal to the mass of matter of the hydrogen-atom. We may have the right logically to say that the indivisible particles of matter called atoms are conceived to be constituted of constituents—of parts which made up the bodies of the atoms occupying a certain portion of space; they are indivisible, insofar as there exists no smaller particle of matter in the universe as a body of an atom, in which they may actually be divided as a certain portion of mass, and at the same time they may be conceived to be constituted of parts, insofar as they occupy a certain portion of space which can mentally be endlessly divided. But we have no right logically to say that those indivisible particles possess each of them a peculiar weight, a different amount of mass; for, if they all are indivisible, they all must be of the same weight, and there cannot be any smaller mass of matter than any indivisible particle; and if they are different in weight they are positively no indivisible particles of matter. And again, an indivisible particle of matter which is larger than the other is a natural impossibility; because, as there is one atom larger than the other, there must

be a certain particularized active cause to make it larger than the other; and to every particularized active cause there must always be a reactive cause or a resistance to that action; if we may assume that all the atoms of the endless dimensions of the universe are equal in mass, we have then nothing to do with any particularized cause or force, but with the one universal cause, with the Absolute Emanation, which is not active and not passive, which has no reaction and no resistance to action, as it is absolute and eternal, and which by the one Emanation emanates all atoms in *one* certain mass, but if we should assume that the atoms are different in mass, we must also assume that they must have a changeable action to their peculiar masses, and then, as a natural necessity, they must be always changing. Indivisible particles, each of them having a *constant* weight peculiar to itself, are, therefore, positively a natural impossibility.

And finally, there is a positive fact, after many experiments, made by Dulong, Barzelius, Dumas and many others, that water contains by weight 8 parts oxygen to 1 part hydrogen, by which it is to be understood plainly that the atomic weight of oxygen compared with that of hydrogen is 8 to 1, and there is no evidence at all for their assumption that the atomic weight of oxygen compared with hydrogen is 16 to 1, but only their previous assumption that a molecule of

water contains 1 volume oxygen to 2 volumes hydrogen, which has also no special evidence but only that of the atomic hypothesis of Dalton, which is in itself absolutely false, the assumption which is based only upon Dalton's hypothesis has at present, consequently, no evidence at all, and consequently their atomic weight has also the same luck.

The truth, however, is simple and clear, as I have demonstrated and clearly explained before: All the compound objects of the whole physical world are made up of atoms, the *smallest conceivable indivisible* particles of matter of an *absolute equality*; they all are absolutely equal in mass, weight, volume, quantity and quality, all of which are *equally* endowed with their *natural* double motion, as a resultant of their central force producing motion in all directions. Those atoms, through the physical changes *in space*, become combined into chemical molecules *in time*. Those molecules, again, producing new physical changes *in space*, produce new chemical molecules *in time*, possessing different quantities and qualities, and so on, as has been demonstrated before. Oxygen and hydrogen are not elementary bodies but compound molecules of simpler forms of matter. The hydrogen molecule, being prior in time, possesses a larger porosity, while oxygen, being later in time, possesses a smaller porosity, and comparing the mass of a volume oxygen

with the mass of such a volume hydrogen the ratio will be nearly 8 to 1. When such a volume of oxygen and such a volume of hydrogen are combined they form water, possessing the mass of the two. The volumes of hydrogen-gas and oxygen-gas in the chemical laboratory, however, cannot be measured by the volumes of the molecules in their isolated states. The volume of one oxygen molecule can be larger than another volume of an oxygen molecule, on account of the different amount of the outward physical changes in the grouping of the atoms in such a proximity to form a molecule oxygen, and such is the case with all other molecules. The chemical combination has nothing to do with the volumes of the molecules but with their *mass*, which is called by our scientists—"weight." The chemical combination takes place by the juxtaposition of the atoms, as Dalton said, or, as the chemists determined it, as a direct substitution or as a replacement of the molecules entering into combination one molecule in the place of the other; but not according to their views, that no "element" ceases to be what it is in any combination, as their "elements" cannot be split into two. The truth, however, is that we have no elements *at all*, and that all the *molecular bodies* must be split into their singular atoms by all their combinations, losing their identities and ceasing to be what they are. When

the molecules of oxygen and hydrogen are combined, forming water, they cease to be oxygen and hydrogen in actuality. The smallest conceivable particle, *the atom* of water, is nothing else but water; it has no trace of oxygen and hydrogen in actuality as long as it exists as water in actuality. But all the individual objects of actuality of the whole physical world are contained in the latent potency of the Universal Essence by the general force of Centrality, which never ceases to be what it is. The water existing before us in actuality has existed before in a latent potency in the molecules of hydrogen and oxygen, and it contains them in a latent potency at present in its actual existence. When the water, however, becomes decomposed, when it ceases to be water in actuality, it returns into its previous state, to be the previous molecules of hydrogen and oxygen in actuality and water in potentiality, and such is the case with all objects in their process of evolution in the endless universe.* The outward physical changes,

* We now understand the difference between water and other fluids. Water, as a mineral fluid, expands on freezing, floating on the surface of the fluid, because the water-atoms, being on the first step of evolution and their atomic motion is not yet very closely joined together, are more capable of separating from each other into more space; and, therefore, while the empty spaces between the water-molecules are diminished by freezing on account of the reaction or the resistance of the outside physical changes to the molecular motion of the water, the empty spaces between the water-atoms are increased on account of the molecu-

which are the superfluous motion of Centrality, produce the decomposition of the objects, while the inward influence of Centrality, which is the *inertia in matter*, composes them again into a *new* chemical combination into actuality containing the previous combination in potency.

The whole above arguments and explanations, I think, are enough for every honorable and logical thinker to understand the nature of things in general and in their particularizations, and that the many hypotheses of our scientists and the conception of "inertia," according to Newton's first law, are untenable.

The second Newton's law of motion, that *Change of motion is proportional to force*, is positively true—not according to his views on the nature of things and forces, but according to the whole of the foregoing demonstrations.

His third law, that *To every action there is always an equal and contrary reaction*, is also true—not according to his expression, as there is *no direct*

lar motion jumping back to the centre; and, therefore, before the water becomes frozen, the atoms become more separated one from the other. But such is not the case with all other fluids on the second or the third step of evolution—as that of plants and animals—because their atomic motion is already more closely joined together, and during the time of the freezing of their molecules the atoms are not able to be diffused into more space; the whole fluid, therefore, must be entirely contracted when it is frozen.

reaction in nature, but *action* and *resistance to action*, as I have fully demonstrated before.

By the whole of the above arguments, I may have the right to establish again two general laws of nature :

First.—There is not a perfect compression by the chemical combinations of the atoms and molecules into objects in the universe ; that there are not two atoms or two molecules in the universe which are perfectly condensed together and compressed one with the other without empty spaces between them ; but all compound objects are composed of molecules and the molecules of atoms by empty spaces between the molecules and the atoms. This law is fully explained above.

Second.—There are not two individual objects in the universe that are different in their properties and do not differ in their porosities. The objects having equal porosities possess exactly the same properties, and a variation in the porosity of an object produces a corresponding variation in its properties. This law may be proved as follows :

The different properties or qualities of all the compound objects are the different chemical combinations of the atoms into molecules and molecules into bodies, and the different chemical combinations are

the different degrees of heat, which are the different rapidities and directions of the motion of the atoms and molecules, thus causing different porosities in all compounds. The porosities of the compounds, the empty spaces between the atoms and molecules, are the Universal Essence of its latent state *before* its transformation, while the matter of the atoms and molecules of the compounds is the Essence in its actuality *after* its transformation, so that the empty spaces in the compounds are not exactly one and the same with the matter of the atoms and molecules of the compounds. The heat or the motion of the atoms and molecules is an actuated force (passive) by the force of Centrality acting on the matter of the atoms and molecules, producing motion in the matter of the atoms and molecules, not in the empty spaces between. The empty spaces, which are the vibrated Essence *before* its transformation, are always affected by the different magnitudes of the motion, but they are not exactly the same as the matter of the objects upon which the force of Centrality acts *after* its transformation, directly producing motion. The empty spaces, therefore, serve as a *resistance* to the action of the force of Centrality producing a resistance to the motion. And, therefore, a different porosity is a different resistance to the motion, through which the motion becomes modified and transformed in all the

different kinds of motion, and the different kinds of motion are the different chemical combinations producing different properties or qualities in the objects, and, consequently, a variation in the porosity of an object produces a corresponding variation in its properties, as a general absolute law of nature. All the different forces in matter, accordingly—as the force of electricity, magnetism, heat, light, and all the forces in minerals, plants, animals and men—are due to the different porosities in the bodies.

The *heat* in a body is nothing else but the motion in it; it increases as the motion is increased; the different degree of heat in a body or the temperature is the different magnitude of motion which is always according to the different porosity of the body. And as the different porosities of the molecules are generated one after the other in time by the influence of one upon the other, there is, therefore, a very intimate connection between the relation of bodies to heat and their chemical nature, as it is the result of the experiments made by Dulong and Petit on the “specific heat of the elementary bodies,” which is, in reality, the *specific motion of the molecules*. The higher degree or the larger temperature of a body is but the increased velocity of the motion of the body, overpowering the peculiar motion of the atoms and molecules of their chemical combination; its action consists

in separating or decomposing the parts of the compound objects. These separated parts moving with the greatest velocity cause an undulatory motion of the surrounding atoms which filled the universe, hence the sensation of *light*.

Magnetism is a *simple* kind of motion in a compound object possessing thin and parallel elongated pores. The scientific experiments, made by Joule, de la Rive and Gray, have also shown that a bar of iron lengthened when it was temporarily magnetized in the longitudinal direction. When the magnetizing force was removed the bar shortened, but in general not quite to its original length. The general character of the phenomena is the same in soft or hard iron or steel. So that magnetism can only be manifested in bodies possessing this peculiar property, namely, the elongation of the pores in parallel directions. The influence of Centrality in such a body works without any obstacle, as its pores are not curvilinear just as the pores in other bodies; and, therefore, it is the strongest motion of the influence of Centrality at the two ends, producing a greater influence on the surrounding bodies to lose their peculiarities proportionally to such a greater influence, and the motion of the magnetic body is totally wanting in the middle where the spiritual force is resting in the centre. The magnetism is not due to the two hypothetical "magnetic fluids,"

according to the views of Coulomb and Poisson, it is also not due to Maxwell's "molecular vortex theory," as there are no special fluids or imported molecules by "another Creator" in the Universe besides our *natural* fluids and molecules of *one common nature*. Magnetism is nothing else but the simplest motion of Centrality in the body which possesses elongated porosity, and, therefore, a very high temperature destroys this phenomenon as the heat destroys the previous proximity of the atoms and molecules in the body, so that the elongated porosity of the magnetic body ceases to play a magnetic role. And finally, since both the ends of the magnetic body possess greater influence of motion than all the other bodies upon our globe, they are, therefore, not affected and not influenced by the surrounding bodies, but directly by the earth itself, which is an oval-formed globe, having two poles, one of which is thicker than the other, as a resultant of her two opposite forces: Centrality and motion, her influence therefore causes directly the magnetic body to possess her peculiarities.

Electricity. The Centrality and motion working differently in different parts of a body produce a resultant force which is called electricity. This differentiation of the work of the primitive two forces is due to the different state of porosity of the body, *i. e.*, if we warm one portion of a body we cause a dilation of the pores at this portion, thereby hindering the influence

of the force of Centrality and consequently increasing the motion. In the non-heated portion the influence of Centrality works, therefore, differently than in the heated portion, and thus we produce two kinds of motion of the atoms in the same body, and by the overpowering of one kind of motion by the other in the same body we perceive with our senses the phenomenon of electricity.

Electricity is not due to the hypothesis of Mr. Franklin, who supposed that there exists a peculiar, subtile, imponderable fluid, which acts by repulsion on its own particles, and pervades all matter. This fluid is present in every substance in a quantity peculiar to it, and when it contains this quantity it is in the natural state, or in a state of equilibrium. By friction certain bodies acquire an additional quantity of the fluid and are said to be *positively* electrified; others by friction lose a portion and are said to be *negatively* electrified. It is also not due to the greater nonsense of Symmer, that there are two such fluids in the universe, one the positive and the other the negative. For an imponderable fluid which has its own particles exists not in the physical universe beyond the atoms, as I have explained before.* The nature

*One of the latest scientists, Prof. John Tyndall, although he has already recognized that *heat is a mode of motion*, in his great book, still tried to accept one of those two hypotheses, in his "Lessons in Electricity," not going one step farther and saying, as heat is a mode of motion why should not electricity be the same?

of electricity again is not as defined by the physicists Ganot and his translator Prof. Atkinson, expressed in their book of physics as follows:

“Unlike gravity, it is not inherent in the bodies, but it is evoked in them by a variety of causes, among which are friction, pressure, chemical action, heat and magnetism.”

According to their views, gravity is inherent in bodies while electricity is evoked by external causes. *The tenant makes the landlord move from his own house!* It is true, friction brings electricity because it brings a greater velocity of motion in *one portion* of the body, pressure brings also a greater velocity in the motion of *one portion* of the body, the same is with the other causes; yet Electricity, which is a kind of motion, is inherent in the body, while “gravity” does not exist at all. And when you put the electrified body in hot water or in the fire, in order that the body should *be heated at all its sides alike*, the electricity of that body would be lost at once. Metals are not capable of receiving the electric excitement, because they are good conductors of heat; when a portion of a metallic body is heated the heat is spread over its *entire* body. Electricity tends constantly to pass to the surface of bodies; because the electricity is the excitement of the motion, it must lodge at the circumference of the electrified body, where, as I have shown, the greatest power of motion must be. When

the positive and negative electricity came together it was converted into naught, because the Centrality and motion in the body came to their previous regular state.

The identity between light and electro-dynamic waves and the electro-magnetic light theory of the latest scientists according to which the light effects depend on electrical vibration, are not due to their hypothetical fluid called the "ether," which has no existence in the universe, but to the vibration of the atoms themselves, under the force of Centrality by the stimulation of the Essence, which is not an imponderable fluid composed of particles or of another kind of atoms, but is an Absolute, Spiritual and Universal Essence ; it is an eternal being radiated from Absolute Intellectuality, becoming a Medium between Intellect and Matter.

Let me continue my Universal Mechanism :

When the universe was full of the different molecules having the double motion, they met one another and combined themselves in a massive body of loose texture—a *nebula*, by one centre in the middle, being also an oval figure from which we have our large massive body which we call the *SUN*. The diameter of this great nebula was then 1242 million German miles long at least, equal to the diameter of

the ellipse which Neptune describes around the Sun. The influence of Centrality, imparting itself to all the parts of this body, produced an immense motion of its compound parts, thus causing the motion around its axis and in an ellipse. The motion, having been modified and differentiated by the differences in porosity of the components of this vast body, appeared in different forces as in heat, light, magnetism, electricity, etc., in all its burning glory. The motion of the circumference of the nebula was so great by the centrifugal force, that the superficial parts have detached themselves, and fled far away from its body; the great motion of the nebula has influenced those parts to lose their peculiarities, and caused them to move towards the nebula again, with a still greater rapidity, to sink down deep in the nebula, and in this way the consistency of the nebula became more and more compact. Thus in thousands upon thousands of years the nebula, as well as its pores, got smaller and smaller, and more compact, and this is the body which we call *SUN*.

Those parts which were detached from the outside ring of the Sun and fled far away from its body, have not had the power to form small nebulae, as planets for themselves, as Kant and Laplace have dreamed. For the solar nebula at this time contained more matter according to their views than it does now; for all the other planets, according to their views, were

still incorporated in it. Besides this, its force of attraction (according to their views upon which their theory is based) was the strongest and the distance between the sun and the new planets was the smallest. Its gravitation at that time must have been so great that it should have attracted the new planets as our earth would attract a big stone thrown from it. The theory of Kant and Laplace that all the planets of our solar system came into existence from those parts which are thrown off from the sun is, therefore, absolutely false. It is a patent fact, that, according to their theory, there is a force of gravity in matter, as well as, according to my theory, that there is not a force of gravity, but that of influence—every part which is thrown off from any heavenly body must be returned with a greater rapidity to that body from which it was thrown off. The truth, however, is that all the planets came into existence through the following cause :

As the solar nebula becomes more and more condensed, through its own parts, which are constantly thrown off from its outside ring, by the force of centrifugal, and which must be returned with a greater velocity to merge deeply in the body of the sun, it causes empty spaces in the Universal Essence, which the nebula has occupied before. The Essence at that space again individualized itself into atoms; these

combined into molecules and small bodies, moving with the usual double motion. In this way, when the solar nebula was condensed more, so that its diameter was reduced to about 800 million German miles, there appeared in those empty spaces, many and many small nebula which were combined from the new atoms and molecules in those empty spaces from the Essence itself. The nearest of the small nebulae to the sun, being influenced by its rapid velocity, in the first distance from the Sun, moved toward it, falling on the body of the sun, as we see by the very small planets or the falling star, the meteors upon the earth when they came in the first distance of it (the first distance of the earth is 860 German miles, in which all the surrounding, bodies being influenced by its velocity, they lose their peculiar double motion; and this is the law of falling bodies); the remotest small nebulae from the sun, being influenced by the rapid motion of the sun only in the second distance or in the third from it, had their own double motion but acquired a greater velocity on account of the influence of the sun in that distance, and came in contact with one another and found one large planet, which we call Neptune, which again moved in usual double motion around its axis and ellipse. Later on the solar nebula was still more condensed, so that its diameter was reduced to about 400 million miles—another empty

space, more individualization of the Essence, a *new formation* of molecules and bodies, which attained a great velocity of motion through the influence of the sun, and striking one another, brought into existence another planet—Uranus. In the course of time the Sun was condensed to a diameter of about 225 million miles—another empty space—another *new formation* of molecules and bodies, and another planet came into existence—Saturn. Later on the Sun shrank down to a diameter of 125 million miles, whereby empty spaces in the Essence were produced, *new atoms*, new molecules and bodies came into existence, and the greatest planet was created, Jupiter. Then again the nebula was condensed to a diameter of 64 million miles, new empty spaces, *new atoms*, new molecules and bodies have produced the small planets, called Astroids. These Astroids came not together to form one planet as all the previous planets were created, for, at the same time the Astroids are influenced by the Sun to move in its velocity and direction according to the distance from the Sun they are also influenced by a great power of the greatest planet, Jupiter, to move in its direction also; thereby they are prevented from being combined in one planet. When the solar nebula was condensed to a diameter of 43 million miles, new empty spaces, *new atoms*, molecules and bodies, and a new planet is produced—Mars. The nebula shrank

down again to a diameter of 32 million miles, and produces new empty spaces again, *new atoms*, new molecules and bodies, and the planet we live on was created — *the earth*. Still later the Sun was reduced to a diameter of 27 million miles, the planet Venus was created. Finally, after the last shrinking of the Sun to the diameter of its present state, the youngest planet, Mercury, came into existence.

In the same way the creation of all the rest of the planets, moons and comets of our solar system took place, and this is the case with all celestial bodies in the endless universe. The primitive matter for all bodies that ever can be in an actual existence in an unlimited universal space is nothing else but a spiritual Essence, which is Absolute and eternal, it is unlimited by time and place, has no beginning and no end; for it is the absoluteness of Absolute Intellectuality. Its realization is the intellectual Inferences revealed one from the other and one after the other in actuality as they are known one in the other in the Intellectual Laws of Absolute Intellectuality. So that each realized thing has its eternal existence in the contents of the Intellectual Being, in which every one of the particularized objects is known and defined beforehand one in the other, in a *Predestined Harmony* (as Leibnitz has conceived something of it) in the infinite inferences of the one Absolute Intellectuality in all

eternity. But when it is realized, when the general *force* of transformation, the force of Centrality, brings forth all the infinite inferences through the Intellectual Waves of their infinite infinities, in a Spiritual Essence, to be revealed in actuality, according to the Laws, Rules and Orders, which are the Inferences of Intellectuality itself, one from the other and one after the other, in the order of creation, each of them, then, only then, has its time and place; it has a time and a place when and where it exists in actuality, but it has no time and no place in its eternal existence. The existence of every thing in actuality is nothing else but the revelation of the Essence, issuing forth one from the other and one after the other, occupying a certain place in a certain time, through the general force of Centrality, by temporary causes issuing forth also one from the other and one after the other in the eternal bond of causation.

The same applies to our solar system as well; there was a time and a place when and *where* the sun with its planets did not exist and there will be a time and place when and where the sun will be shrunk more and more to occupy a smaller diameter in space, and another planet will appear, and when the planet Neptune will be far away from the sun, that it will not be any more influenced by the sun, to move in the direction of the sun, but by its peculiar double motion,

and the above-mentioned new planet, to be formed between Mercury and the sun, will have its own peculiarities according to its distance from the sun; and there will be a time when the whole solar system will disappear, be returned to the Essence again, and be transformed into something else. The same is true of all the innumerable bodies that fill the universe. Each moment some new worlds come into existence and others vanish, change into other beings and worlds, and such is the play of creation from eternity to eternity.

The great Architect, constructing the universe as well as our solar system, has not used the "Centripetal force" or the force of "Gravitation," nor any other "forces" which our scientists have invented, but the Emanation of His Intellectual Light itself is the general force of transformation, the force of Centrality, which, bringing forth all mental images from their idealistic state into the potential state, brings forth with it the qualification of the individualization of every one, to be individualized in actual existence, by the impulse of Centrality, producing thereby the double motion of every object *by its being an object*. Each object has the *motion around its axis according to its mass*, and the *elliptical motion* to move from one place in the other in an ellipse, *according to its volume*. The sun, being greater in mass and in volume

than all the planets taken together, has the greatest rapidity of the motion around its axis according to its mass, and makes the greatest ellipse in the universal space in its elliptical motion according to its volume. Jupiter, the greatest of the planets, has the greatest force of its peculiar double motion in comparison with the other planets; Mercury, the smallest of the planets, has by its peculiarity the least force of that double motion. But the sun, revolving itself with its great rapidity in the universal space, which is the universal Essence in its potential state, containing all objects, all their causes, effects, and all their modifications in its latent potency, excites and awakes the Essence to be revealed in such a rapid motion as that of the sun itself. The whole universal space around the sun is, therefore, influenced by the rapid motion of the sun; all atoms, molecules and bodies that may be found in that space are influenced by the rapidity and direction of the sun, losing through it their own peculiarities. That influence, however—since it is the product of the influence of the force of Centrality in the centre of the sun, which divides itself equally to all sides, from the centre to the circumference—diminishes, therefore, according to the square of the distance of the universal space from the sun, and the distance in this case is measured by the length of the radius of the sun, which is the distance from the centre to the

circumference, about ninety-six thousand German miles. So that the unit or the normal influence of the sun is in the first distance, four times weaker in the second distance, 192 thousand miles from the sun, nine times weaker in the third distance, and so forth. All the objects that may be found in the first distance from the sun lose their peculiarities totally, and falling upon the circumference of the sun they become parts of it, to move together in its peculiarity—as is the case with the falling bodies upon our planet, the earth, in the *first* distance, 860 German miles over its circumference. The objects that may be found in the second distance from the sun, however, retain their own peculiarities inversely proportional to the diminishment of the influence of the sun in that distance, viz., four times more of their peculiarities; so that they retain their double motion by themselves, but influenced by the rapidity and direction of the sun to move with great rapidity proportional to the influence of the sun in that distance in an elliptical way around the sun—just as is the case with the falling stars upon the earth. Those falling stars, meteors as they are called, are new small planets, coming always into existence by the new empty spaces which are found always in the Universal Essence, which give birth to *new atoms*, new molecules, new bodies and new planets in the whole endless universal space.

When they are found in the second distance of the earth or over any other large body, over the moon, planets, sun and stars, they move themselves fluttering in the elliptical way of the large body, but when they come to the beginning of the first distance they lose their peculiarities altogether and, falling upon the earth, they become parts of it, through which the earth becomes more compact and larger in mass, and such is the case with all other celestial bodies. The objects that are found in the third distance from the sun possess nine times more of their peculiarities, inversely proportional to the diminution of the influence of the sun in that distance, through which the double motion of those objects are combined to move in the direction of the sun, and so forth. The planet Mercury, accordingly—although it is the smallest of all planets—being the nearest to the sun, the influence of the latter, moving from west to east, is so great upon its surrounding area, that it causes the planet to move with the quickest speed, namely, 6.9 German miles a second; the next planet Venus, being less influenced by the sun, moves only the speed of 4.9 miles; the earth, which is still further from the sun, moves only 4.7 miles, and Jupiter, being still further from the sun, only 1.7 miles a second, and so is the case with all the planets. Thus the work of the planetary system is not due to the “gravitation”

but to the motion and its influence. Without the sun, however, the planets would move more slowly, and according to their respective masses and volumes.

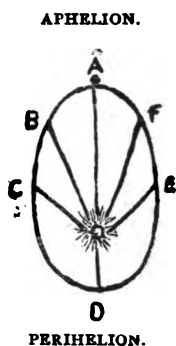
Should we assume that the planetary motion is due to the theory of Sir Isaac Newton, that we have two side forces acting under a certain angle on the planets one of which is the Centripetal force, or the attractive power of the sun, and the second the centrifugal or tangential force of the planets, through which the resultant force must be equal to the diagonal of the parallelogram, having the same angle of inclination as the working forces, and the sides proportional to the forces, and all the planets move therefore in ellipses, while the sun is fixed in the focus of the ellipses of all the planets—as I have explained his views before—we have no reason, then, and no explanation as to the cause of the varying rapidity of the motion of the planets. We find that the nearer the planets are to the sun the stronger is their force of motion (their tangential force). This fact cannot be explained by Newton's Laws, for according to his laws we have to find the case to be reversed. It is clearly understood that every force which is active in matter continues its activity, opposing, according to its strength, all the lesser forces that may work against its action. Now, if there was a force of gravitation in the sun, that force would attract to him the bodies that are around him,

and according to its strength prevail over the lesser forces, the forces of motion which lie in the planets and which oppose the gravitation of the sun. According to this, Mercury, being nearer to the sun than all the other planets, must be subjected to his gravitation more than they all are, and should therefore have a force of motion (his tangential force) less than theirs; the sun's gravitation must in his case be so strong as to reduce his motion more than it reduces the motion of the other planets. The motion of Venus, again, should be stronger than that of Mercury and weaker than that of the earth. Continuing in this wise we should have the forces of motion of all the planets increasing in proportion to their distance from the sun. But since we find the case to be reversed, we must conclude that there is no force of gravitation in the sun.

In addition to this we must take into consideration the following circumstance: The reason why the planets move in the perihelion faster than in the aphelion, according to the second law of Kepler, is, according to Newton, because they are the nearer to the sun, as I have cited his view above. This explanation contradicts itself; because the force of gravitation takes the upper hand over the tangential force, the latter increases ?

Let us assume for argument's sake that—accord-

ing to the second law of Kepler, "the line drawn from the sun to a planet, or the radius-vector of the planet, sweeps over equal areas in equal times"—the motion of the planets must be stronger when they come nearer to the sun, according to Newton's cause, in order that the gravitation of the sun should not attract the planets when they are nearer to him. If we divide the ellipse which a planet makes by its elliptical motion in six triangles, as we see in this figure, we find that the areas of those triangles are perfectly equal although they vary in form. The arc BC is longer than the arc AB which stretches from the aphelion A to the point B, although the triangles ASB and BSC are equal in their areas. The planet moving in that ellipse must therefore go at a greater speed from B to C than it went from A to B. The third arc, stretching from C to the perihelion D, is still longer and must be run by the planet still faster, in order to cover equal areas in equal times. So that, according to Newton's explanation, the motion of the planets is stronger when they are nearer to the perihelion, which is nearer to the sun, to cover equal areas in equal times, because the gravitation of the sun is stronger on the planets when they are nearer to the perihelion, their tan-



gental motion must be, therefore, also greater, not to be more affected by the sun. We must, however, consider that Kepler has discovered the law by facts, not by causes. The fact is that the planets cover equal areas in equal times. But not because they possess a voluntary motion, *to be careful* to run faster when they are nearer to the sun, but the planets are impelled by the force which is inherent in them or by the one which acts upon them from the outside, each according to its peculiar nature. That force, again, cannot be changed by the nature of its own impulse. If it be in the nature of the planet to move at the rate of five miles in a second it must go on at that rate regardless of its position in the ellipse, whether it be in the perihelion or in the aphelion. As a positive fact, the cause of their variation cannot be in the constitution of the planets or in the nature of their motion—recourse is taken to Newton's theory and the cause is ascribed to the gravitation of the sun. But this again is erroneous. The force of gravitation of the sun, which is to attract the planets in a straight line unto the sun, cannot be at the same time the impulse to increase the tangential force of the planets to move far away from the sun with greater rapidity. The force of gravitation, instead of prevailing over the force of the tangential motion and causing the sun to attract the planets to him, causes the latter to run in

an elliptical line and always to pass by the sun when they come near to him; thus we find two opposing actions produced by one impulse of one force, which is a natural impossibility.

Honor is due to John Kepler who has discovered the three laws of planetary motion, as he made no attempt to explain them on false theories, although the hypothetical force of gravitation was known to him through many philosophers and scientists who preceded him. But Newton came and based all physical and astronomical phenomena on that false theory. Natural scientists—without searching for its cause or value in Nature in general, without inquiring by what cause gravitation was brought into compound objects and what impels its action, or whether gravitation was indeed one of the principal and dynamic forces, as Sir Isaac Newton and his followers claim, and whether it reveals to us the mystery of nature and affords an answer to every question that suggests itself about the creation of the universe and nature—those scientists came with their mathematics and built upon the theory of gravitation great structures, signs and landmarks all along the road of natural philosophy and astronomy.

The mathematical inferences, through which all objects, their causes, forces, effects, changes and all their phenomena are produced, have their origin in

the absolute knowledge of the general existence of the universe entire, in the mathematical or logical bond in the absolute Intellectuality. If we conceive the pure knowledge of the general existence, through which we are able to understand the causes and effects of the natural phenomena, then, and only then, does the science of mathematics serve man to make for himself signs on the road of knowledge in the realm of nature: can he by mathematical calculations trace his way to the recognition of the very nature of that phenomena. But if that correct knowledge is missing, if the axioms upon which the mathematics are based do not contain the truth in themselves, mathematics cannot help him to find out the nature of a phenomenon, its causes and effects. Nor does the knowledge which we derive from the observation of single phenomena suffice to impart exact information of the nature, causes and effects of things in general. The nature of single objects is not absolute; for single phenomena come into existence through causes and effects which have their origin in the general order of things, and those causes and effects change and vary in every individual object through the causes and effects which the aggregate of all objects, which nature as a whole, produces. All experiments of single phenomena exhibit only individual and isolated forces that exist in matter under certain conditions and at

certain times, of which mechanics and investigators may make use for themselves in their individual mechanism or investigations; but they do not evidence any universal cause or natural law. The axioms and laws which are based only upon experiments of single phenomena, as long as they are not proved by the knowledge of the universal causes in general, are only delusive to the senses, and an implicit belief in their universal significance bars for us the road to knowledge and Wisdom Supreme.

Let us consider the axiom of Sir Isaac Newton, upon which the science of the mathematics of our scientists is based. His axiom or law is this: "Every particle of matter in the universe attracts every other particle with a force varying directly as the masses, and inversely as the square of the distance." This axiom or law, however, not only does not contain the truth in itself, but it contains its contradiction in itself. By the expression: "Every particle of matter," we have to understand that every particle of matter, *as a particle*, must be a particle for itself; every particle of matter, as a particle, must have in itself some force, some power, to be *this* particle, separated from any other particle; as a patent fact, the force of every particle is to keep the particle in its particular state; the force or the power of every particle, being occupied by its own impulse to keep the particle in a particular

state, can positively not be the force to attract another particle to itself. A particle of matter which attracts any other particle by its own nature, is positively a natural impossibility. The whole objective world, as it is before us, consists of particularized objects, each one in its individual state, positively not because the universal existence is an attractive power, but because the universal existence in the physical world is a power of individualization, each object to exist in its individual state and form. The combinations of many particles in one body must be forced naturally or artificially by other outside forces, not inherent in these particles; but none of the particles desires to attract another particle to itself by its own nature.

The elliptical motion of the moon around the earth, which is the first and the most simple proof of the law of gravitation, according to our scientists, is in reality a positive proof against the theory of gravitation. In the first place the proof of the scientists, which is demonstrated as follows, is no proof at all. Their proof is that: The force acting on the moon is equal to the force of terrestrial gravity, reduced as the inverse square of the distance of the moon and of a point on the earth's surface from the centre of the earth. The fall of a body near to the earth's surface is about 16.1 feet, or nearly 193 inches per second (by English measure). This velocity diminishes

according to the square of the distance. The moon is, roughly, at a distance from the earth's centre equal to 60 radii of the earth, and therefore the earth's moving force is less on her than on a body at the earth's surface as 1 to 3600. It follows that the fall of the moon towards the earth in a second on account of the earth's attraction (according to their own views) amounts to rather less than $\frac{1}{10}$ of an inch. The tangential motion of the moon, again, is according to their views—if at any moment the earth's attraction ceased to act—also $\frac{1}{10}$ of an inch. So that if for the next second the moon moved on a tangent to her present course, her distance from the earth's centre at the end of that second would be rather more than $\frac{1}{10}$ of an inch greater than at the beginning of the second. It is a positive proof by the scientists of the laws of gravitation, that the moon falls every second from her tangential line and is attracted to the earth in every second a distance of $\frac{1}{10}$ of an inch; so that the moon is attracted towards the earth precisely as she would be if the force of gravity acting on bodies near her surface ruled her also, the law of variation of the force with distance being that of the inverse squares.

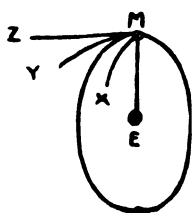
It is true, if we would know clearly by a pure argument or by certain other proof that the earth possesses the force of gravity; and if we would know

by a pure argument or certain other proof that the bodies that are found in the second distance or in the third distance over the earth's surface fall on the earth by a certain velocity, according to the square of that distance, so that a body which is found in the distance, of 60 radii of the earth falls $\frac{1}{16}$ of an inch in the first second; and if we would know also clearly, by some special argument, that the moon has a tangential force by herself, so that, if the earth should cease its action on the moon, she would move in a straight line in the universal space; then we would be able to believe in the proof of those scientists, and see the facts in actuality according to all arguments and proofs in intellectuality.

But as we do not know of the tangential force of the moon by any special argument or proof besides the theory of gravitation, and as we do not know of the case of the falling bodies that are found over the first radii from the earth's surface by any other special argument or proof besides the theory of gravitation, we have no right to believe in the theory of gravitation only because we have made the assumption that the moon has a tangential force, moving in a straight line, if it were not affected by the earth, and the assumption that a body which is found in the distance of 60 radii from the earth is attracted to it by a velocity of $\frac{1}{16}$ of an inch in the first second, in order that

those assumptions should be a proof of the theory of gravitation, while, in reality, both assumptions are positively nonsense; neither the moon nor any celestial body has a tangential force to move in a straight line in the universal space, and no particle of matter which is found over the first distance of the earth has any tendency to be attracted to the earth's surface.

Secondly, the fact whereby the elliptical motion of the moon around the earth is explained in the



theory of Sir Isaac Newton is a positive proof against the whole theory: It is simply explained by elementary considerations, according to Newton, in a mechanical figure, thus: Let E represent the earth, and let M represent the initial position of the moon.

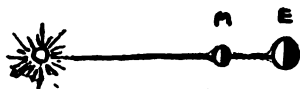
If the moon be simply released it will immediately begin to fall along the line ME on the earth. If, on the other hand, the moon were initially projected along the line MZ perpendicular to ME , the attraction of the earth at E will deflect the moon from the line MZ which it would otherwise have followed, and compel the moon to move in a curved line MX . In this way is said to be explained the elliptical motion of all the planets around the sun. It is evident that the moon or any planet was, according to this theory, originally projected with a certain specific velocity, regarding its

distance, in a direction at right angles to the radii-vectors connecting the moon and the earth or the planet and the sun; then, the moon or the planet could continue forever to describe a circle around the earth or around the sun. For the particular form of the curve which the planet will describe depends upon the initial velocity. With a small initial velocity, the deflecting power of the sun will have a more speedy effect than is possible when the initial velocity is considerable. The rapidly curving path MX will therefore correspond to a small initial velocity while the flatter curve MY may be the orbit when the initial velocity is considerable. So that each planet or each satellite, such as the moon around the earth, must be imagined to possess, accordingly, a certain specific initial velocity according to the distance from the body around which it is revolving and according to its power of gravity, in order that the two side-forces, the initial velocity which is the tangential force and the force of gravitation should be in an equal direction at right angles, through which the circular motion should be the resultant force.

Now, if the laws of gravitation were true, if every body possesses an attractive power according to its mass, if the elliptical motion of the moon around the earth is due to the gravitation of the earth and the elliptical motion of the planets around the sun is due

to the gravitation of the sun, it would be a natural impossibility that the moon should have an elliptical motion around the earth. Because at the same time that the initial velocity of the moon was deflected by the attraction of the earth to make a curved line, as a circular motion around the earth, it would be deflected by the great power of attraction of the sun to make the curved line, as a circular motion, only around the sun, not around the earth. The moon is at a distance from the earth's centre equal to 60 radii of the earth. The fall of a body near the earth's surface is about 16.1 feet, or nearly 193 inches per second. It follows that the account of the earth's attraction on the moon amounts to rather less than $\frac{1}{10}$ of an inch. From the sun's centre is the moon at a distance equal to 215 radii of the sun. The fall of a body near the sun's surface, according to their views, is about 451 feet or 5,412 inches per second, nearly 28 times greater than that of the earth's attraction. It follows that the account of the sun's attraction on the moon amounts to rather more than $\frac{1}{8}$ of an inch, or nearly $2\frac{1}{2}$ times greater than that of the earth's attraction. Thus every second that the initial velocity of the moon is deflected by the gravitation of the earth it would be deflected $2\frac{1}{2}$ times stronger by the gravitation of the sun, and the moon would never make a circular motion around the earth.

As a matter of fact, the moon's orbit at any moment is an ellipse, having the earth at one of the foci; but this orbit is constantly changing in form and position, the eccentricity alternately increasing and decreasing between the limits 0.066 and 0.044, and the perihelion sometimes advancing and sometimes retrograding, and so many more variations in the motion of the moon are always apparent. The explanation of our astronomers of the variations consists in this: Since the sun acts to diminish the earth's gravitation when the moon is in syzygies and to increase that gravitation when the moon is in quadratures, the motion of the moon is retarded in the former case and accelerated in the latter, and at the octants there is neither acceleration nor retardation. The gravitation of the sun acts sometimes in drawing the moon from the earth when she is in



conjunction with the sun, as we see in this figure—and sometimes in drawing

the earth from the moon when she is in opposition,



as we see in this figure, and so on. The balance of effects during a single lunation must correspond to a diminution of the

earth's gravitation through the perturbing action of the sun on the moon's motion relatively to the earth.

Such are the arguments and explanations of our astronomers, which are absolutely false. The problem of three bodies teaching us the determinations of the perturbations in the motions of the planets and their satellites, which are due to the interference of other bodies—that in any problem where perturbations are involved, we have at least three bodies, viz. : the principal body S (the sun), a body, P , which circulates around S , and a disturbing body, P' . If we had only two bodies, S and P , to consider, then P would describe around S a conic section, of which S was the focus, and the radius-vector, SP , would sweep over equal areas in equal times. By the introduction of the third body, P' , which attracts both the former bodies, S and P , the motion is deranged, the orbit which P describes is no longer a conic section, and its radius-vector has ceased to describe equal areas in equal times, teaches us plainly that the perturbing force is very small in comparison with the primary force by which the motion of the disturbed body is controlled. We, therefore, were enabled to say that the elliptical motion of the moon around the sun, if the case was so, through the great primary force of the sun, is disturbed by the smaller force of the earth; but it is ridiculous to say that the elliptical motion of the moon around the earth through the small force of the earth is disturbed by the great primary force of the

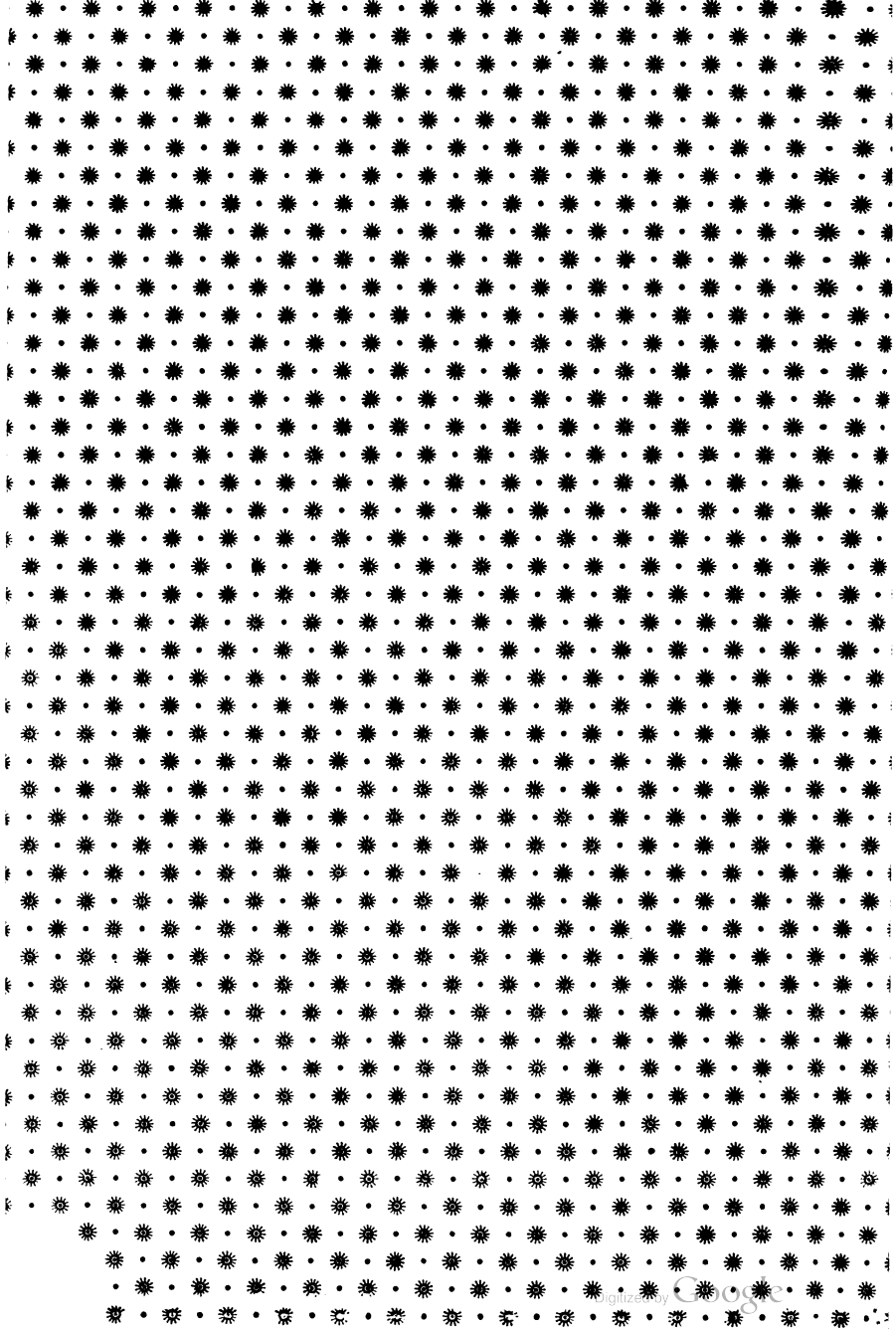
sun, as it is ridiculous to say that a body is drawn 2 feet northwards, minus 4 per second, when the body is forced by two opposite forces, one of which enforces it to move southwards 4 feet per second and the other enforces it northwards 2 feet per second, while, in reality, in that case the body is drawn southwards by the greater force, 4 feet a second, minus 2, by the disturbance of the smaller force. If the planetary motion were due to the theory of gravitation, then, it were positively a natural impossibility that the moon should have a circular motion around the earth. Thus, as a positive fact, there is no force of gravitation at all. The whole astronomical knowledge of our scientists may be true only through the fact that we have a great deal of astronomical knowledge from the observations made at Babylon and by Ptolemy, long before that nonsensical theory of gravitation. The discoveries of Copernicus and Kepler are also found through facts and mathematical calculations, not by the cause of gravitation. In the same way the discovery of the planet Neptune by Leverier and Adams is due to facts; the planets have their certain motion in the solar system, and they were also disturbed by other planets, and have therefore found, by the Problem of Three Bodies, that a planet must be found over the planet Uranus. But their discovery has absolutely nothing more to do

with the cause of gravitation than with the cause of the influence of the Universal Essence, through which all astronomical and physical phenomena are clearly explained, as I have already proved by many arguments before.

Perhaps I have sufficiently proved the existence of a general and Absolute Universal Essence—by all the arguments, demonstrations and explanations of the preceding four chapters—as a protoplast to all things that may be found in the physical world, and that the Essence itself is nothing else but the Absolute Emanation of the Absolute Intellectuality, who reveals Himself by His whole glory in universal existence through the *Medium*—this Universal Essence. Although my English may not prove to be correct in regard to composition—for I am a foreigner, and feared to intrust the translation to other hands—nevertheless it serves to convey the proper ideas of the whole theory to every logical thinker who seeks the truth only for the sake of truth itself, to conceive, by a general conception, the Universal Wisdom. And although there may be some apparent misunderstanding of the expressions of the philosophers and scientists whom I have controverted in this book—which needs nothing more than some improvements—still I am bold enough to say that the theory within itself sheds new light on all the mysteries of the endless universe to those who will set aside all partiality, prejudice and dependence upon their preconceived ideas or authorities who are generally recognized, and who will scrutinize the phenomena which are explained through the above theory. They will thus positively reach the highest stage of Universal Wisdom.

NOTE BY THE PROOF-READER.

The proofreader through whose hands the foregoing work has passed, feels impelled to ask the indulgence of the reader, and to bid him overlook what appear to be errors or inaccuracies in language. In a work of such depth, it was indeed dangerous to depart from the MS. submitted by the author, even where violence seemed to be done to the English language, lest some thought of the author be thereby twisted or escape. In fact, this happened in the early pages of the volume with the result intimated, so that it became necessary to undo his work, and the proofreader became the slave of his MS. The author, whose vernacular is Hebrew, found difficulty in writing his work in English; and surely the printer could not clothe in accurate language the subtle thoughts of a writer who sets out to demolish Spinoza, Newton and others whose systems have an established place in the realms of science. It is the thought and not the diction that must convince the scholar who passes judgment upon the system elaborated by the author, and that has been preserved at the expense of elegance and accuracy of language.



June 25

